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AIMS AND SCOPE OF *INDUSTRY AND DEVELOPMENT*

The journal *Industry and Development* is published at least twice a year in English, French and Spanish, as an integral part of the work programme of the International Centre for Industrial Studies (ICIS) of UNIDO. The chief responsibility for the selection of articles and book reviews making up each issue is rotated among the members of a Supervisory Panel composed of the following ICIS staff members: J. Cody, A. de Faria, A. Feraldis, S. Nanjundan and V. Richardson. For this issue, the supervisor was S. Nanjundan.

Industry and Development attempts to provide a communication link between practitioners and theorists working on economic and related aspects of the process of industrialization. The focus of the journal is on applied analytical research in areas emphasized in the Lima Declaration and Plan of Action on Industrial Development and Co-operation (see UNIDO, PI/38), such as international industrial co-operation and consultations; national, sectoral and project planning and policy formulation; economic aspects of technology choice, transfer and development; the role of the transnational corporations; rural and small-scale industrialization; and income distribution and employment.

The Supervisory Panel welcomes the opinions and comments of its readers.

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Preface

The Lima Declaration and Plan of Action on Industrial Development and Co-operation (1975) envisaged "the role of industry as a dynamic instrument of growth essential to the rapid economic and social development of the developing countries". While prescribing the target of at least 25 per cent of world industrial production to be met by developing countries by the year 2000, the Declaration stressed that industrial growth should be distributed among the developing countries as evenly as possible. In the measures of national scope enunciated in the Plan of Action, "encouragement and support of small, medium-scale and rural industry and industries which fulfil the basic needs of the population" was advocated as a contribution to the integration of different sectors of the economy and as a means of mobilizing local human, natural and financial resources to achieve economic and social objectives.

The first article in this issue, prepared by the UNIDO secretariat, analyses the ways in which industrialization and social objectives of development complement each other. It is recognized that strong and sustained growth in the economies of the developing countries is a precondition for the progressive satisfaction of basic needs. Furthermore, strategies designed to promote socio-economic development and the fulfilment of basic needs clearly require complementary policies involving a balance between industrial and agricultural development, urban and rural development, labour-intensive and capital-intensive production and domestic consumption and foreign trade, among other things, depending upon the circumstances and policies of individual countries. The success of endogenous strategies for rural development and for a more equitable world-wide distribution of income will be conditioned by exogenous factors, e.g., a substantial increase in the net flow of financial resources to developing countries, improved access to markets in developed countries for manufactured goods produced in developing countries, and the restructuring of world industry to achieve a more appropriate international division of labour.

In the second article, P. K. Das reviews basic issues, macro-policies and components of a programme of industrialization integrated with rural development. He advocates strategies and programmes involving spatial planning of industrial development as a rural-urban continuum and illustrates his analysis by drawing on experience in India and Iran.

Planning of rural development is constrained by the lack or inadequacy of statistical data, particularly accounting information relating to enterprises that operate in the so-called informal sector. In the third article, William Loehr and John P. Powelson have made an accounting study of small-scale rural businesses in the Western Province, Kenya. They have compiled accounting-like information from firms that do not keep accounts and have derived interesting conclusions from the estimates for 62 small-scale businesses. The paper presents a methodology for evaluating financial operations and tentative conclusions on the efficiency of rural enterprises.

In the next article, M. T. Haq provides an analysis of the integrated rural development programme in Bangladesh. The institutional machinery for planning and implementation, the linkage between industrialization and other sectors of the rural economy, particularly agriculture, and the success of efforts at co-ordination have been reviewed, with suggestions for a more effective role for industrialization.

The last article, by Roxana Escoto, is a case study of rural industrialization in Costa Rica, carried out by a co-operative enterprise in the San Carlos region. The practical implications of a rural development project and its impact on the rural community are analysed.

China provides the most outstanding example of successful rural development in recent years. Three books on the Chinese experience have been reviewed in the Books section. Three UNIDO publications relating to small-scale and rural industry have also been reviewed.

EXPLANATORY NOTES

References to dollars ($) are to United States dollars, unless otherwise stated.

References to "tons" are to metric tons, unless otherwise specified.

The following abbreviations are used in this publication:

BIDS	Bangladesh Institute of Development Studies
ESCAP	Economic and Social Commission for Asia and the Pacific
HYV	high-yielding varieties
IRDP	Integrated rural development programme
LDCs	less developed countries
MDCs	more developed countries
NEC	National executive committee
PfP	Partnership for Productivity
TTDC	Thana Training and Development Centre
WEC	World Employment Conference

Industrialization and social objectives of development: some elements of complementarity

Secretariat of UNIDO

Within the framework of a new international economic order, industrialization was envisaged in the Lima Declaration and Plan of Action on Industrial Development and Co-operation (ID/CONF.3/31, chap. IV, p. 4)[1], as "a dynamic instrument of growth essential to the rapid economic and social development of the developing countries, in particular of the least developed countries". Through a plan of action involving both national authorities and the international community, it was foreseen that the share of the developing countries in total world industrial production "should be increased to the maximum possible extent and as far as possible to at least 25 per cent of total world industrial production by the year 2000, while making every endeavour to ensure that the industrial growth so achieved is distributed among the developing countries as evenly as possible".

The Lima Declaration and Plan of Action draws attention to the need for developing countries to consider the characteristics of each country in the light of its social and economic structure when formulating industrialization plans and strategies. Other guiding factors in the endeavour to raise living standards and eliminate social disadvantages and unemployment should be social justice and the principle of equitable distribution of the benefits of industrialization among all sectors of the population.

In national industrialization policies, the Plan of Action emphasizes the intensive use of national resources, infrastructural development and internal regional development. Promotion of such an integrated industrialization process entails the establishment of production facilities covering all branches of industry. Industries such as steel, metallurgical and petrochemical industries are seen as basic to industrialization, while integral industries provide the necessary link between industrial sectors. At the same time, the creation of manufacturing and processing industries to satisfy the needs of the population for consumer goods is emphasized as is the need to develop rapidly local production to replace imports and increase exports. Moreover, the Plan of Action points out that the integration of different sectors of the economy can be furthered through the encouragement and support of small, medium-scale and rural industries that meet the basic needs of the population.

In 1976, the year following the adoption of the Lima Declaration and Plan of Action, the World Employment Conference (WEC) adopted a Declaration of Principles and a Programme of Action, which stated that "one of the primary objectives of national development efforts and of international economic relations must be to achieve full employment and to satisfy the basic needs of all people throughout this One World".[2] It was also emphasized that international and national

[1] Transmitted to the General Assembly by a note by the Secretary General (A/10112). Also available as UNIDO public information pamphlet PI/38.

[2] ILO, *Employment, Growth and Basic Needs: A One-World Problem* (New York, Praeger Publishers, 1977).

efforts should be directed "towards fulfilling the basic needs of all the people and particularly the elementary needs of the lowest income groups".[2]

The term "basic needs" refers first, to the minimum requirement for food, shelter and clothing, secondly, to the need for social services, in particular education, so that poorer sections of the population will have a fair opportunity to find jobs on the basis of ability. The concept of basic needs should be considered in terms of each country. For the poorest countries it may mean elimination of absolute poverty, but for the richer countries it may mean greater equity of income distribution.

Strong and continuing and finally self-sustained economic growth entails conditions in the country that may also be considered basic needs, not of individual citizens, but of the country as a whole. Among such requirements is a rate of investment sufficiently high to achieve a rapid and steady improvement of the standard of living. Moreover, the progressive mastery of the most advanced technologies would seem necessary not only in the sectors producing basic materials and capital goods—the main element in sustained growth—but also in the most advanced industrial branches, to promote more equitable terms in negotiations with foreign enterprises.

In recent years a debate has ensued over "North-South" economic co-operation, "South-South" economic co-operation, and a new international development strategy for the 1980s and thereafter. Some of this debate, by linking development assistance to the goal of meeting basic needs tends to regard the latter as an alternative to other objectives, such as those embodied in the Lima Declaration and Plan of Action. The analysis made further tends to show that these objectives are closely intertwined. The satisfaction of basic needs of the individual cannot be attained without the rapid growth of the countries concerned. "While economic growth may occur without benefiting the mass of poor people, their poverty cannot be relieved without growth."[3] Growth of this kind for the developing countries as a whole is contingent upon restructuring international economic relations and strengthening the capacity of developing countries for self-sustained growth. If absolute poverty is to be eradicated from the world by the year 2000, a massive effort is required not only by the developing countries or the poorest countries, but by the international community, the order of magnitude—in terms of resource transfers—being several times the current level. Growth, employment, fulfilment of basic needs and an equitable distribution of income—within countries and within the international community—are closely interrelated, and their achievement demands a new international development strategy.

In comparing the Lima target of 25 per cent share of world manufacturing value added for the year 2000 with the WEC objective of meeting basic needs, it should first be noted that the latter is expressed in more general terms than the former. The WEC programme of action proposes that the satisfaction of basic needs be explicitly included in strategies and national development plans, rather than as a quantitative target to be achieved by a certain date. This difference arises at least partly because meeting basic needs is a fundamental objective of social welfare whereas the Lima target, rather than being an end in itself, represents a means to attain welfare goals, among which the satisfaction of basic needs is included.

The Lima target relates manufacturing value added (MVA) growth rates in the developing countries to those in the developed countries. To achieve the 25 per cent

[3] Maurice Williams, "The development challenge of today", *OECD Observer*, No. 89, November 1977.

target by the year 2000 (at present the share is about 8.5 per cent), MVA growth in the developing countries will need to be roughly 5 per cent greater (in average annual terms) than in developed countries. Thus, if MVA in developed countries grows by 4 to 5 per cent (which is less than the average for 1960-1975), MVA in developing countries will have to grow at a rate of about 10 per cent (as compared with an average of 7.4 per cent during 1960-1975).

Increasing capacities in the heavy industries, i.e., those producing basic materials such as metals, metal products, non-metallic mineral products, chemicals, petroleum refineries, miscellaneous petroleum and coal products, paper and paper products frequently requires the utilization of capital-intensive technologies and large production facilities. The Lima Declaration and Plan of Action states that "developing countries should devote particular attention to the development of basic industries . . . , thereby consolidating their economic independence, while at the same time assuring an effective form of import substitution and a greater share of world trade". In this connection, table 1 is of interest.

Table 1. Distribution of heavy industries and share of heavy industries in manufacturing production by economic grouping

(Percentage)

	Developed countries					
	Market economies		*Centrally planned economies*		*Developing countries*	
Description	*1960*	*1976*	*1960*	*1976*	*1960*	*1976*
Share of the economic grouping in total world production of heavy manufacturing	73.5	56.9	21.7	36.9	4.9	6.2
Share of heavy industries in total manufacturing output of the economic grouping	62.0	67.6	58.1	71.8	37.5	51.1
Share of heavy industry in total manufacturing employment of the economic grouping	54.5	57.1	58.5	62.8	22.7	26.1

Source: "Industrial development survey, Working Paper No. 2, A disaggregated view of manufacturing production employment and productivity, 1960-1976" (UNIDO/ICIS.57/Add.1).

Although the heavy manufacturing sector in developing countries has steadily increased, it is still very small in comparison with that in the developed countries, where more than two thirds of industrial production is in the heavy manufacturing sector.

These data illustrate the need for continuing and increased efforts to establish heavy industries in developing countries. At the same time, to meet more rapidly the basic needs of the poor, increased investment not only in urban areas but also, and perhaps more important, in rural areas will be necessary. The experience gained in efforts to promote rural development indicates that such efforts should be integrated. Not only does agricultural production have to be increased, but also

transport infrastructure and institutional infrastructure, including education. A rapid improvement of agricultural production itself entails long-range investment in irrigation facilities, land improvement, agricultural research and development, as well as the production of inputs to agriculture such as fertilizers, tools and implements, and, in many instances, farm tractors and machinery. Such long-gestation undertakings in turn call for large amounts of products originating in heavy industries, which again indicates the importance of these industries to meeting the basic needs of the population.

Moreover, since most of the poor of the developing countries live in rural areas, rural industrialization would also be an important part of any integrated rural development policies, since it would both offer additional employment opportunities and help to meet the basic needs of the rural population. Rural industrial development programmes need to be integrated horizontally with national rural development programmes and vertically with national industrial development programmes.

While the share of developing countries in the world production of heavy industries is still very small, the share in world production of lighter industries is already substantially larger, as table 2 shows.

Table 2. Share of developing countries in world production of light industries by industry

(Percentage)

Industry	*1960*	*1975*
Food, beverages and tobacco	12.9	14.6
Textiles	18.9	18.7
Wearing apparel, leather, footwear	10.4	15.0
Wood	5.7	6.6
Total (including branches not shown separately)	11.8	12.4

Source: "Industrial development survey, WorkiPaper No. 2, A disaggregated view of manufacturing production employment and productivity, 1960-1976" (UNIDO/ICIS.57/Add.1).

In general, these industries are less capital-intensive; the extent to which the production facilities could be small-scale and, as a consequence, spread outside large cities should be examined. An effort to decentralize certain industries, in particular those processing local raw materials and to some extent those covering local demand for basic consumption goods, could certainly be, as indicated above, an important part of rural development programmes.

In the long run, the benefits of more decentralized industrial activities in developing countries may be far-reaching not only in terms of employment and income redistribution, but also in terms of production and sustained growth. The argument that labour-intensive technologies are necessarily inefficient tends to be exaggerated. In several sectors, particularly those designed to meet rural consumption and production needs, small-scale production using techniques significantly different and less capital-intensive than those in industrialized countries may prove fully effective, with the resulting products available at competitive internal prices. The fact that such production would cater to small local markets would also ensure their

competitive character in a number of fields. However, the problem is to define the sectors in which such techniques can be adopted and to identify specific processes and techniques that are suitable from the techno-economic viewpoint. The adoption of less capital-intensive techniques in the decentralized sector may also, in the long run, have a significant bearing upon the investible resources required per unit of output. In fact, investible resource outlays may well be reduced in the future for a number of sectors, with production being undertaken in small units using domestic equipment and resources to a greater extent.

While capital-intensive technologies are necessary in heavy industries, other manufacturing branches frequently permit a wider range of technology depending on the nature and quality of the human and material resources available, the location of industrial activities and the type of product. However, a real choice of the most appropriate technologies and of alternative locations for industrial production facilities would depend, to a large extent, not only on the development of appropriate infrastructure in rural areas, but also on the technological development in the countries concerned. The growth of technological capability in developing countries is basic to the selection of appropriate technology, whether for heavy industries or light. The problem involves an assessment of technological needs followed by the creation of the corresponding technological infrastructure and adequate institutional mechanisms, so that the technological objectives can be adequately fulfilled in accordance with a well-defined technology plan.

Inadequate capability to provide technological services is a major constraint in most developing countries. Such services range from national industrial planning to project identification, feasibility studies, plant specifications, detailed engineering designs, civil-engineering, construction and machinery installation, plant commissioning, start-up and operations. The result, even in the more industrialized of the developing countries, may be considerable dependence on foreign design and engineering services, which influences the investment pattern for particular projects, the nature and quantity of capital goods and equipment required, and subsequent plant operations and management. In the lesser developed economies, the gaps in consulting services are even more marked and extend over almost the entire range of services indicated above.

In view of the difficulties developing countries face in increasing rapidly their technological capability in respect of both the application of foreign industrial processes and the elaboration of new processes better adapted to their economic and social conditions, it would appear that developing countries as a whole will need to import sophisticated equipment and products of the more advanced industries for a long time. To finance such imports, developing countries should be in a position to increase considerably their exports of those manufactured products for which they have a comparative advantage, either because of their endowment in the corresponding raw materials or their abundance of manpower. The fact that for a large range of light industries the share of developing countries in world production is more than for heavy industries points to the importance of further restructuring world industry if growth in developing countries is not to be hampered, or even blocked, by their inability to pay for their imports of advanced products and equipment through exports of simpler manufactured goods.

The expansion of industrial production in developing countries requires developing countries to move rapidly to co-operate both in deploying new productive facilities and in facilitating the corresponding trade flows and to continue to do so.

While at present exports of manufactures from developing countries are mainly destined for developed countries, these flows will have to be supplemented by rapidly growing exchanges among developing countries. Developed countries can play an important role in promoting these new production and trade patterns that are essential to the growth of industry in the third world.

As mentioned above, further development of semi-urban and rural areas will require a considerable amount of additional investment. However, a long period, possibly one or two decades, is required before the investment will show results. During this period the corresponding increases in production of consumer goods will be substantially smaller than the effective increases in consumption. This is due to the nature of the investment that must be undertaken, especially in transport infrastructure, educational facilities, irrigation programmes and applied research, and technological research and development. Decentralization will have to be undertaken on a broad front and be fully integrated, while the investment related to infrastructure, agriculture, industry and services will have to be co-ordinated.

In view of the long period involved, and the size and complex character of the necessary effort, for the coming decade and possibly the decade thereafter, many developing countries, especially the least developed and poorest ones, will not be able to undertake such an effort unless a substantially increased flow of resources can be obtained from developed countries, since it would be neither advisable nor possible to have such an effort accompanied by a lower rate of economic growth. Thus, so as to permit faster fulfilment of the basic needs of the population in developing countries, increased co-operation from developed countries should include various elements that have already been discussed in international forums, including the Lima Conference, the General Assembly, UNCTAD IV and the ILO Conference on Employment. Among the areas of co-operation that would seem particularly relevant to industrial development, several can be mentioned.

First, a substantially increased net flow of financial resources is needed, in particular, official development assistance (ODA) and loans on soft terms. At the same time, a satisfactory solution to the problem of accumulated debts in many developing countries will have to be found.

Assistance from developed countries is needed in matters relating to the choice, acquisition and adaptation of technology. Although the developing countries must build their own technological capacity as rapidly as possible, it would seem that a faster development process would necessitate increased co-operation on the part of developed countries in providing information on technology, offering reasonable terms on which it is acquired, in transferring know-how and in training cadres to use the technology. A special effort would appear essential in the relatively new field of research aiming at the design of more appropriate technologies (especially for the decentralized sector) and the design and production of the corresponding equipment.

Developed countries can co-operate in restructuring world industry and in achieving a better specialization of labour at the world level. An increased rate of growth in developing countries will entail an expansion of their trade not only among themselves, but also with developed countries. Access to markets for developing country products and of adjustment measures within the developed countries assume considerable importance in this connection.

In the long run, both developing and developed countries will benefit from an additional co-operative effort to increase the pace of development through a vigorous, integrated attack on poverty. For developed countries, these benefits will

result largely from the higher level of efficiency and specialization in industry at the world level, and from a considerable expansion of their markets in developing countries.

At the same time, within the framework of the establishment of a new international economic order,

> ". . . the task of removing the existing misery and deprivation cannot be treated in isolation from that of correcting the massive and portentious inequities . . . which prevail in today's world. Without such corrective action the gulf—which does not reflect the natural distribution of factors of production—will continue to grow because control over these . . . over the terms of trade and over the international monetary system, for historical reasons, passed into and remains largely in the hands of the industrialized countries".[4]

[4] Speech of 11 October 1977 by Ambassador Ikbal Akhmed, Permanent Representative of Pakistan to the United Nations, before the Second Committee of the General Assembly (ILO document GB.205/10/4/4, 14 February 1978).

Basic issues, macro policies and components of a programme of development

*P. K. Das**

Integrated rural development

The need for rural development

In most developing countries, rural areas account for about 55-85 per cent of the population, and the agricultural sector engages about 40-70 per cent of the labour force. Table 1 gives some representative figures for the concentration of population and labour force in rural areas and in agriculture.

Table 1. Rural population and labour force in selected countries

Country	*Population (millions)*	*Population in rural areas (percentage)*	*Labour force (millions)*	*Labour force in agriculture (percentage)*
India	550 (1971)	80	180 (1971)	72
Indonesia	120 (1971)	83	40 (1971)	62
Pakistan	65 (1972)	75	21 (1974)	57
Philippines	37 (1970)	68	15 (1975)	52
Egypt	37 (1975)	55	8 (1966)	53
Iran	34 (1975)	56	8 (1966)	42
Syria	7 (1974)	54	2 (1974)	51
Sudan	17 (1974)	87	4 (1973)	67
Turkey	38 (1970)	58	15 (1970)	68
Ecuador	7 (1974)	59	2 (1974)	47
Guatemala	5 (1970)	66	2 (1973)	57
Peru	15 (1972)	45	4 (1972)	49

Whatever average gain was recorded in the initial economic growth in developing countries, it hid the fact that certain sectors, areas and regions gained at the expense of others, certain sections of the population prospered more than others, and certain individuals advanced economically more than others. The sectors and areas that gained in particular were the manufacturing and trading sectors and the urban areas. Most development plans had laid considerable emphasis on the manufacturing sector, which in turn resulted in a concentration of infrastructure in the cities. In the late 1950s and early 1960s the fallacy of this trend began to be realized, and planners started to look into means by which rural areas and particularly the productive sectors located there could be more fully integrated into national development

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efforts. This shift in emphasis no doubt brought the agricultural sector into the limelight.

During the last two decades the agricultural sector has seen major changes, particularly in regard to land reforms affecting ownership patterns, mobilization of labour and rural savings, and the introduction of new agricultural technologies affecting output and input patterns. However, even after more than two decades of efforts in this direction, rural-urban income disparities continue to be high in developing countries, starting from 3:1 and going upwards, and this disparity appears to be growing rather than narrowing. A recent study made by the Asian Development Bank[1] states that rural poverty is particularly widespread in Asia, and there is a consensus that the problem has worsened considerably during the past decade. In most of the Asian countries, the lowest 40 per cent of the people receives less than 20 per cent of the income. The study further states that "the road ahead is much harder". A World Bank paper[2] states that approximately 85 per cent of all absolute poverty is in rural areas; and if income of less than one third of the national average of each country is used as a standard, then about 40 per cent of the total population of developing countries is living at levels of absolute or relative poverty, of which 80 per cent resides in rural areas.

During the last two decades, varying emphasis has been placed on the development of the rural sector.[3]

A major reappraisal of the policies, patterns and means used for developing rural areas is taking place throughout the world. Such a reappraisal indicates that expansion of employment through expansion of acreage under cultivation is limited in most countries and thus the man-land ratios are worsening. Therefore, increases in farm output and incomes can largely be achieved through increases in acreage yields, and family incomes improved through increases in labour productivity. This in turn will lead to considerable changes in manpower requirements. If incomes of those engaged in agriculture are to be doubled or trebled through intensification, expanded production and technological modernization, the manpower required in absolute terms will not greatly exceed what the sector has now, and in some cases it will be less. Secondly, urbanization and demand for manpower in other sectors of the economy is not keeping up to the total growth of the labour force in both rural and urban areas. Thus, in almost all developing countries the major growth of the labour force is taking place in rural areas, with agriculture unable to absorb the additional hands and industries and services in cities unable to expand employment opportunities to take care of the normal expansion of the labour force in urban as well as rural areas. Therefore, if the surplus rural labour continues to stay in rural areas, it will depress rural incomes and living conditions still further. On the other hand, if it migrates to the cities, a common phenomenon, it creates the slums that one sees in almost all cities in developing countries.

In this study two countries have been selected for special examination, namely, India and Iran, largely because of the differences in their resources and manpower situation. It is estimated that in India the rural population will decline from 80 per

[1] *Rural Asia: Challenge and Opportunity,* 1977; also as reported in *ADB Quarterly Newsletter,* July-August 1977.

[2] *Rural Development,* Sector Policy Paper (Washington, D.C., World Bank, February 1975).

[3] This is also evident in the creation in 1976 by the United Nations, Administrative Committee on Co-ordination of a special Task Force on Rural Development.

cent of the total in 1971 to 70 per cent in 2001,[4] but the agricultural labour force will not increase much from the present level of 129 million.[5] This would mean that the balance of the addition to the rural labour force during this period, estimated at 77 million, will have to be absorbed elsewhere, assuming the participation rate remains the same. In Iran, it is estimated that the rural population will decline from 57 per cent of the total population in 1972 to about 40 per cent of the total in 1992.[6] The estimated demand for manpower in agriculture will, however, continue to remain in the range of 3.5-3.8 million throughout the period 1972-1992, which means that the net addition of about 1.3-1.4 million to the rural labour force will have to be absorbed elsewhere, either in rural or urban areas.

Development strategies have attempted to solve this problem either by giving priority to "modern" sectors, in the hope that such modernization and the indirect spread effects from it will benefit rural areas and the rural poor, or by helping increase rural production and incomes, a more direct approach to rural development. Those who advocate this latter approach have been gaining considerable ground against those who think that rural development efforts, by laying emphasis on a poorly developed sector, will lead to slower overall growth rates. ILO studies to date suggest that average national growth rates would have to be much higher than hitherto—probably unattainably high—if the needs of the poorest groups are to be met through "trickle down" effects only.[7] In this new concern for the rural sector, though agriculture is a key rural productive sector, the emphasis is moving away from exclusive attention to agriculture to a more comprehensive multisectoral approach. Attention to social programmes only to alleviate the disparity in incomes will not be adequate. A vast increase in output in all sectors is needed, and hence other productive sectors must be considered as well. The questions facing development planners are which other sectors should be taken up, what is their growth potential, under what conditions and in which organizational pattern of development effort can they be promoted.

The rural non-farm productive sector as it exists in most developing countries comprises farm families inadequately engaged in agriculture who ply other part-time trades and the rural labour force engaged in manufacturing, construction and productive services, some of which support agricultural activities, some of which provide services to the rural population or produce articles for the urban and export markets. In India, about 10 per cent of the rural labour force[8] is engaged in such non-farm activities, of which 33 per cent is in rural household industry, 23 per cent in rural manufacturing (other than household type), 4 per cent in rural mining and quarrying, 7 per cent in rural construction, and 33 per cent in commercial transport and storage services. In Iran, this sector engages about 23 per cent of the rural labour

[4] Government of India, Registrar General of India, 1974 World Population-Year, CIR-CRED Series.

[5] C. S. Chandraskhara, "Problems of urbanisation, population projections", *Economic Times*, 13-14 September 1977. The present level includes cultivators, agricultural labourers and workers in livestock and orchards, as of 1971.

[6] P. K. Das and A. Templeman, *Development of the Rural Non-Farm Sector in Iran*, (Teheran, ILO-UNDP, 1977), pt. 1.

[7] Statement by ILO delegate to the United Nations Economic and Social Council Session, July 1977.

[8] Government of India, Registrar General and Census Commissioner. The data relate to 1971. The figure excludes those in other services (mostly in administrative and social) and the unemployed. Population Statistics, Census Centenary 1972.

force, of which 35 per cent is in rural crafts, 6 per cent in rural manufacturing (other than crafts), 23 per cent in construction activities, and 36 per cent in commercial, transport and community-based productive services. It is this aggregated sector that is now being examined in greater depth in several countries for its development potential and potential for creating employment and raising incomes. In India, one estimate[9] suggests that the sector that services agriculture should be expanded rapidly in two decades to employ about 22 per cent of the rural labour force as compared with the present 6-7 per cent. If this percentage change generally applies, it would mean that the whole of the non-farm sector will have to expand from the existing level of about 10 per cent of the rural labour force to over 30 per cent in two to three decades. In Iran, the rural non-farm sector as a whole should expand to employ about 40-50 per cent of the rural labour force by 1992.[10] The role of rural industries in this expansion needs to be closely examined.

Concepts of integrated rural development

The objective of rural development is not only economic development in its narrow sense, but balanced social and economic development. The achievement of such an objective has been attempted in the past through either "selective or single-sectoral" programmes or "integrated or comprehensive" development programmes. The former approach tries to deal with a single activity or sector such as agriculture, education or health, in the belief that its development will either remove the constraints to overall development or trigger such development. The latter approach tries to deal with co-ordinated activities and sectors to achieve a sustained rise in rural employment and income and standards of living in general.

The term "integrated" has, however, been used in different countries to mean different things. In the early years of rural development, it meant the combination of economic and social development. Thus attention was focused on agricultural development, this being the predominant productive sector, and on education and health, though not necessarily through co-ordinated efforts. In some countries it included upgrading of rural crafts as well. In other countries, the term "integrated" has been used to denote a programme offering a package of incentives and services for the development of a single rural sector such as agriculture, but in most cases certain elements of social welfare programmes have also been included.

More recent pronouncements emphasize the comprehensiveness of both the objectives and methods of implementing such programmes. The ILO Advisory Group on Rural Employment Promotion through Integrated Rural Development found that rural development included both the promotion of agricultural and non-agricultural activities in rural areas, that an integrated approach was essential, that a multipronged attack on rural poverty was necessary and that the rural sector should be more fully integrated into the national economy.[11]

The "Strategy for Integrated Rural Development" issued by the Government of India as part of the budget document for 1976/77 states that the new:

> ". . . concept of rural development as visualized now, presupposes a strategy of integrated rural development of agriculture, industry and social

[9] Chandraskhara, *loc. cit.*

[10] Das and Templeman, *op. cit.*

[11] Report of the ILO Advisory Working Group, World Employment Programme, Rural Employment Promotion through Integrated Rural Development, Geneva, 1974.

services—complementing each other in achieving a systematic, scientific and integrated use of all natural resources—physical and human—for the betterment of the rural population".[12]

This new strategy attaches great importance to the growth of the non-farm sector alongside the growth of the farm sector, for it is realized that modern agriculture needs a solid industrial base and an efficient system of delivering of supplies and services. The recognition of the importance of the rural non-farm sector, in particular rural industries, in integrated rural development programmes is only very recent. In the past this sector received a low priority in such rural programmes even though it was known that the agricultural sector was not meeting the employment and income aspirations of the rural masses.

By definition, "rural development" cuts across all sectors. The term "integrated" is used to reinforce three essential features of planning and implementation:

(a) Integration with national plans and policies, with emphasis on attacking the problems of rural areas;

(b) Co-ordination of planning and implementation of the component sectoral programmes through administrative structures in which government ministeries and departments organized on sectoral lines are represented;

(c) Participation of the rural population in the planning and implementation process.

Of late such programmes have defined the group for which such programmes are designed—it is the rural poor.[13] The Interagency Co-ordinated Plan of Action for Integrated Rural Development in the ESCAP region, formulated at Tokyo in February 1977, states that the main objective of integrated rural development is to improve the quality of life of the rural poor.

The role of rural industries within integrated rural development programmes

Role of rural industries in the rural economy

Urbanization has become more and more capital intensive. The social costs of establishing industries in overcrowded cities are increasing. Mere urban renewal does not solve the problem of conjestion in cities unless the steady flow of migrants can be arrested, and the only way to arrest it is to create more jobs in rural areas. Rural industrialization may provide a less costly alternative to urban industrialization by taking industrial development to where the masses of population are already living.

Rural industries along with other non-farm activities provide those who are underemployed in agriculture or in other rural sectors, namely, those who do not have enough work even during peak agricultural seasons, such as marginal farmers, and those who are seasonally unemployed only, such as farmers in non-irrigated lands; with an opportunity to increase their income and those who are unemployed or have unsteady employment or are entering the work force with an opportunity to

[12] *Strategy for Integrated Rural Development* (New Delhi, Government of India, March 1976).

[13] See United Nations, A.C.C. Task Force on Rural Development, Geneva, March 1977 and A.C.C.'s Progress Report on Rural Development.

find employment. Rural industries, in addition to expanding rural employment opportunities as such, often provide seasonal employment when it is needed.

Rural industries can strengthen the rural economy as a whole, since they may either provide inputs to agriculture or process agricultural products. Progress in agriculture has resulted in increased use of technological inputs, which should be provided largely in the locality. Moreover, because industrial activities are often non-traditional and "modern", they act as a catalyst in modernizing other sectors of the rural economy.

Rural industries help to diversify the rural economy and make the community less dependent on the varying fortunes of agriculture arising out of fluctuating natural and market conditions. They provide a balancing factor in respect of employment and income in the community. Thus, by introducing diversity, they also help to enrich the quality of rural life.

Finally, rural industries help to achieve a more rational spatial distribution of manufacturing activities in the country.

As the United Nations Committee for Development Planning stated:

> "industrialization should be viewed primarily as a means of improving the conditions of work and living standards of poverty-stricken masses the world over, and not merely as a means of producing a wider variety of products by application of modern technology. If this is not kept in mind, efforts to industrialize may leave the lives of the majority of the people untouched".[14]

Scope of rural industrialization

Rural industrialization does not mean that industrial enterprises should be established in every village, regardless of its size. The location of manufacturing must be selected with care, since industry requires a certain type and minimum level of infrastructure and manpower, and the provision of such infrastructure is costly. Therefore, some rural concentration of industry is economically desirable.

As will be discussed later, different categories of industry are suitable for rural areas. An industry may be classified either in terms of the sources of raw material inputs or the market it serves. Each of these categories can be considered to have different threshold levels for its establishment, in terms of the size of villages and the facilities that these villages offer. The rural sector is, however, variously defined in different countries, mostly in terms of the size of communities, varying from 2,000 to about 10,000 residents. In India and Iran, the dividing line between villages and cities is 5,000 residents. Where the dividing line is set at a low level, and urbanization is not proceeding at a good pace in the country concerned, there is a high percentage of "towns" that have all the attributes of a rural settlement, such as the percentage of the work force engaged in primary-sector activities and in providing services. Some rural industries have a threshold level for promotion in localities that are legally categorized as urban but are functionally rural. Therefore, in considering a programme for the development of rural industries, the rural milieu should be considered more in functional terms; and if the legal definition varies considerably from the functional attributes of the rural sector, then a programme for rural industries can be frustrated.

[14] *Industrialization for New Development Needs* (United Nations publication, Sales No. 74.II.A.4), p. 8.

The development of rural industries, for example, may be wrongly concentrated in localities legally defined as "rural" but that are basically suburbs of large cities. The manufacturing and service activities of such localities are all geared to the needs of the adjoining cities. This has happened in several countries. Thus, the purpose of diversifying the rural economy or providing jobs to rural residents is not served by such a programme. Nor does rural industry development imply the setting up of large, modern factories in "green fields", factories that bring in their own infrastructure, manpower and services, and sometimes their own raw materials, all unrelated to either the needs or resources of the rural locality.

On the other hand, rural industrialization should not be too narrowly conceived as concerned with promotion or improvement of only rural artistic crafts (largely traditional, e.g., textiles and carpet weaving) with the inclusion of certain service trades (e.g., carpentry and smithy, which are also traditional), to the exclusion of all "modern" mechanized or motorized industrial activities. There is a body of opinion that holds that the implantation of modern, large or medium-scale industries in rural areas is not strictly rural industrialization, or that it is undesirable and uneconomical—undesirable, since it brings in a "foreign" activity into rural areas at a technological level not in keeping with the rural milieu; uneconomical, since it requires a thinning out of industrial infrastructure to small communities. A strict and absolute exclusion of large or medium-scale industries from such a programme does not seem desirable. Programmes for placing industries in green areas requiring the setting up of a new community and using none of the rural material or human resources, or not meant to meet any rural need of the neighbouring communities, should be considered part of a national programme of industrial decentralization and of regional development. On the other hand, programmes for locating industries in rural communities by either using rural resources of raw materials or labour, or for meeting a rural need, irrespective of whether they are medium-scale or small-scale (large-scale[15] being mostly precluded), should be considered part of rural industrialization. The greater the integration of the resources and markets of such enterprises in the communities within which they are placed, the greater is their contribution to the economic and social welfare of such communities. The cleavage grows as the percentage of the rural labour force used at various levels (unskilled, skilled, supervisory and management) declines, i.e., workers from outside are brought in who have little interest in rural areas and who send their incomes to outside areas.

Interdependence of rural and urban areas

Rural development programmes have hitherto had one basic flaw—they have been planned and implemented as if they existed in a vacuum. The rural-urban dichotomy in such programmes has always been rigid. Secondly, rural development is often seen as an exercise in developing self-sufficiency of each village, almost on a Gandhian model. The whole question of interdependence of neighbouring villages, the lead role of certain villages in a cluster, and the linkages that exist or can be usefully developed with larger centres extending outside the legally defined bounds

[15] Large-scale, medium-scale and small-scale are somewhat vague terms unless criteria to define them are also indicated. Such criteria necessarily differ from country to country. In the context of rural industrialization discussed earlier, "large" may be used to indicate an enterprise requiring a work force exceeding the normal supply of manpower from a cluster of villages of average size in that country, thus, a new community has to be set up for the enterprise.

of rural settlements into urban settlements, each having its own specialization and areas of influence, have not been considered in such programmes.

It is in this respect that the traditionally designed integrated rural development programmes cannot be easily adapted to rural industrialization programmes of the type described earlier. The type of integration so far attempted in such rural development programmes is largely functional and administrative, i.e., integration of all economic and social activities affecting the rural population (education, health, agriculture, industry) through staffing and leadership. But the spatial nature of integration of these activities, i.e., the suitability of their location, the development of a hierarchical pattern of servicing and consideration of the problems of dispersal and concentration, which are other aspects of "integration", have not received adequate attention. One of the components of rural industry development planning should be area development; without such a component, rural industries will always consist of household or craft types of activity. Even such craft activities cannot be serviced efficiently through common facilities unless attention is paid to spatial considerations.

Only very recently have the spatial aspects of integration been considered in some rural development programmes. In India, for example, the spatial aspects have been brought into the planning process through what is called "growth centre" planning often going beyond the development block level. Certain pilot studies were undertaken in relation to the fourth five-year plan (1969-1974). In Iran, an attempt has been made to consider the spatial aspects by setting up rural development centres as provided for in the fifth national development plan (1973-1977); 1,200 such centres are planned and 300 have been established, but this is only the first level in the rural-urban hierarchy of centres. Whereas each development block in India comprises on an average over 100 villages with a population of 90,000-100,000, the rural development centre in Iran comprises about 10-15 villages in a periphery of 15-20 kilometres and a population of about 12,000-17,000.

The other aspect of spatial planning that affects the development of rural areas is the manner in which such plans are related to national plans. Sectoral plans do not provide means of meeting specific grass-roots needs. An intermediate level of planning is necessary to provide the link between "bottom-up" and "top-down" planning. Therefore, regional planning and possibly integrated area planning are necessary steps in this process. Spatial planning in connection with rural development programmes, and especially the industrial component of such programmes, will suffer in quality where regional planning has been inadequate, particularly in connection with the development of the rural non-farm sector and rural industries. In India, the sixth national development plan (1977-1982) emphasizes block-by-block planning for about 5,000 rural development blocks and provides for a substantial industry component in the rural sector.

Factors promoting or inhibiting rural industrialization

It has often been argued that agricultural improvement is essential to the development of rural non-farm activities. It may also be argued that regions poor in agricultural prospects have a greater need to develop industry, to provide alternative employment. Too often a community is engaged in the production of a very limited range of agricultural products. Diversified agriculture can be achieved in many

regions with a little effort. Field crops can be shifted from grains to oilseeds and fibre crops. A variety of tree and plantation crops can be introduced, depending on physical conditions. Vegetables and flowers on a commercial scale can add to this variety. Livestock, fish, poultry and other animals can be taken up for rearing and marketable production. Such activities are the starting point for diversification of the rural economy, which helps provide a sound resource base for rural industries. Quite often, a poor area for grain production can be a good one for animal husbandry or raising poultry. If, however, there is little prospect of developing an adequate agricultural resource base to provide enough jobs, there is no reason why the necessary raw materials should not be procured from neighbouring areas so long as the entire operation is economic.

Whereas the need for creating employment exists, industrial activities require certain types of skilled manpower often not found in rural areas. Facilities for training workers are often found only in cities. The alternative to waiting for these facilities to be more widely spread is to introduce initially in rural communities only such manufacturing activities that can use manpower having the skills available in such communities. As specialization in the economy grows, the urban sectors tend to prefer institutionally trained persons, and the rural sector relies on persons trained informally. As rural agricultural and industrial activities become technologically complex workers require organized training programmes often different from those found in cities. Such programmes should be part of rural development.

Rural industries require infrastructure that is often costly. Economies can be effected if this infrastructure is required by several rural sectors: For example, electricity may be required for agriculture as well as industry. In other cases economies can be effected by clustering industrial workshops in an industrial estate. Where the provision of a particular type of infrastructure is costly at a particular level of villages, it may prove economical at the next higher level.

The recent reorientation of rural development programmes to benefit the rural poor, when seen in the context of involving the rural population in the planning and implementation of such programmes, presents certain problems. In rural areas entrepreneurship normally is related to agriculture, and where industrial or commercial entrepreneurship has emerged (other than in household activities), it is mostly among the more prosperous elements of the rural society, and not among the rural poor. Therefore, the structure of enterprises for rural industrialization programmes designed to benefit the rural poor has to be very carefully considered.

Enterprise forms such as co-operatives may have a special role to play. However, co-operatives are known to be slow moving and are not venturesome, particularly in respect of new types of production. In most developing countries government agencies have had to assist—even supervise—co-operatives.

In some places rural industry has been combined with farming or agricultural co-operatives. Experience in such a case has been, as in Iran, that the benefits of rural industrialization go largely to the farming community and not to those outside it. In some other places, village councils (or panchayats as in Orissa, India) have been used as ownership and management bodies for rural industries to spread the benefits more widely to the community, but this practice has not been notably successful, since these bodies do not have any expertise or interest in the management of market-oriented productive activities. The extent to which the more enterprising elements of the rural population may have to be brought in to accelerate development, and the manner in which the various co-operating elements of rural

society share the responsibilities and gains arising from rural industry, will differ considerably from area to area.

Finally, as rural development programmes increase their scope they become organizationally more complex and difficult to administer. In turn, they require more highly skilled personnel at each level of implementation than single-sector programmes because of the problems of co-ordination. Rural industrialization requires the injection of a new category of professional competence in the field and supporting institutions different from those found in programmes largely concerned with the agricultural and social sectors. Half-hearted measures in providing these elements will lead to poor results.

Types of industries suitable for rural areas

General considerations

In the selection of industries suitable for promotion in rural areas, raw material resources, manpower and markets in these areas are the prime factors to be considered. In some situations processing may not be based on resources of the rural community in question (such as in small enterprises in the metal products group), and in some situations the product in question may not be intended solely for a rural market (such as in the case of some artistic crafts or some large or medium-sized food-processing industries), but the factor that is essential to placing an enterprise in the rural industries category is whether it uses rural manpower from the locality concerned. Thus, most rural industrial enterprises will either use rural material resources or their products and services will be intended for a rural market and will use manpower largely from the rural community in which it is placed. Situations may arise where rural raw materials are not used or the product is not meant for the market of the rural neighbourhood, such as small enterprises in villages producing components for large industries in cities, but such a situation requires a sophistication that is acquired only in a later stage of development.

Rural industrial enterprises, like urban ones, need not be considered solely in terms of aggregated production facilities. A milk plant may consist of a large dairy farm along with the processing facility, or it may consist of milk collection from several small farms and a common processing unit. Similarly, silk cocoon production can be done in small units or in large ones, but cocoon drying and reeling are undertaken in larger units. The commercial economies of scale and the technological economies of scale in the component activities of an industrial process are often quite different. Therefore, a variety of techno-economic possibilities of organizing industrial production in the rural sector exists, and a rigid pattern of developing large or medium-sized enterprises may not be a healthy approach. The skills and trainability of the type of infrastructure available and the size of the market to be served often determine the size and technology to be used in rural industrial processes.

Industries suitable for rural areas may fall into the following categories:

Service industries, i.e., those servicing agriculture, crafts and manufacturing industries of the locality, rural transport and infrastructural facilities and those meeting the needs of the local community

Crafts industries, including common facility enterprises for such crafts

Agro-based industries processing field crops, horticultural products, animal husbandy and poultry-based products, forestry products and fishery products

Other rural-resource-based industries such as clay, minor minerals and building materials

Non-rural-resource-based and subcontracting industries

The selection of industries for each region will vary somewhat from region to region and country to country depending on the state of development of rural infrastructure in general, on national communication networks, on the characteristics of the region (largely ecological characteristics), on the raw material resources, manpower and size of market.

Service industries

Basically there are two types of service industries. The first type is strictly not manufacturing but provides maintenance and repair, with some manufacture of parts and components, mostly on a job-shop basis, as a corollary to the technological services rendered. The second type consists of units engaged in manufacturing inputs for the various rural sectors and units that are sometimes called "trades industries", i.e., manufacturing is carried out in the front of shops (e.g., tailoring, dressmaking) or behind the selling area in the store (e.g., baking, laundering). Sometimes classifying these enterprises mistakenly as shops and commercial establishments deprives them of development assistance.

One group of service industries caters for agriculture. These industries carry out maintenance and repair of tractors, earthmoving equipment, ploughs, sprayers, pumps etc. Where agricultural methods are traditional, not mechanized, these service enterprises manufacture simple tools and implements in addition to repairing them, such as ploughs, spades, pickaxes, sickles, and water-lifting devices. As new agricultural technologies are introduced these services must become more sophisticated. Often, the more complicated services emerge in larger rural centres. The lack of these services can be a constraint on agricultural development, and improving them technologically and making them more widely available in the area can go a long way to improving agriculture itself.[16] In addition to maintenance and repair services, other industries in rural areas provide inputs to agriculture (such as manufacturing units mixing and bagging fertilizers, manufacturing insecticides or making ropes, twine, containers and packing materials).

The second category of technological services is for rural crafts and small manufacturing activities of the locality. Traditionally these services exist for the manufacture and repair of looms, carding and spinning devices, pottery equipment, wood working equipment etc. As more rural industries are introduced these services need enlarging and upgrading. The third category of services is for rural transport and infrastructural facilities such as for maintenance and repair of carts, bicycles, trucks and buses and for operating and servicing water-supply systems and electrical generation or transformer stations. The fourth category of services is for maintenance

[16] FAO has prepared for some countries detailed plans for setting up workshops in a variety of sizes that service agricultural machinery, providing services differing in range and complexity and located in agricultural communities of different sizes.

and repair of domestic equipment and meeting domestic needs for goods and services. As the standard of living rises a larger range of equipment is introduced into rural homes–furniture, stoves, heaters, coolers, refrigerators, sewing machines, knitting machines–and if maintenance facilities are not available within economic distances, the equipment has to be sent to distant places for servicing. Moreover, demand for services such as laundering, shoe repair and tailoring grows rapidly with an increase in income.

As far as rural areas are concerned, the smaller the community the less differentiated are those services in terms of their content; they are more specialized in larger centres. In small villages, a metal-working shop often services agriculture, crafts and transport equipment. Therefore, one means of promoting these services is to offer special training facilities in servicing to rural young people and offer them credit to start service ventures. These enterprises come into existence if the volume of demand for such services is considered adequate, which in turn depends on the size of the community and income levels, and not because a certain type of infrastructure is available. The type of infrastructure existing in a locality determines the technological level at which these services are carried out.

Of all the categories of rural industries discussed here, this group has the largest potential for growth and employment creation. Indian studies have indicated, for example, that a farmer on an average loses 10-12 days of machine time during the busy season because servicing facilities for farm machinery are not adequate.[17] The Iranian study indicates that the manpower at present engaged in these service activities must be at least doubled to bring the availability of these services to an acceptable level. At present they engage about 5 per cent of the rural non-farm labour force.[18] Their intensification not only expands employment but also meets a basic need. The development of most of these activities has a multiplier effect on productive activities in rural communities as a whole.

Craft industries

A variety of crafts are traditionally produced in rural areas, some of which have a rural market and some of which find urban, touristic or export markets. These crafts meet a rural need and are largely sheltered from urban competition if communications are poor. They are also much more sheltered than rural crafts produced for urban needs, where tastes and values change rapidly with economic development. Where many rural workers are engaged in such enterprises, these productive activities should be maintained or enlarged by product redesign, improved quality, reduced costs etc., the main objective of such efforts being to retain the use of the skills existing and produce a marketable product.

Crafts that provide full-time employment and have an urban market tend to move easily into the cities, whereas those that provide part-time employment, particularly among family workers, remain in the villages, even though the products have essentially an urban market. One of the basic criteria for determining which crafts are likely to be located in rural areas and which in urban areas is the extent to which market linkages are important. If the product is one that has an urban or export market and is subject to frequent changes in product design and specifications

[17] *Manpower Development in Rural India* (New Delhi, Institute of Applied Manpower Research, 1977), p. 11.

[18] Das and Templeman, *op. cit.*, p. 44 and appendix I.

with varying consumer tastes, then strong market linkages will need to be developed to retain the craft in rural areas; otherwise, it will move easily to urban areas.

The policies needed for developing crafts as such are too well known to be repeated here, but a few of the aspects of a rural crafts development programme that may need emphasis may be mentioned:

(a) Attention should be paid to improving the supply and quality of bulk rural raw materials used in large rural crafts, e.g., raw wool and raw silk, and steps taken to reduce their costs;

(b) These crafts should gradually be modernized technologically by developing equipment and tools. Common facilities to improve their economic viability should also be established;

(c) Means should be created by which the producers can be advised on design changes and pereferences in the market, particularly if the markets are distant urban markets, and producers should be assisted in adapting to new designs;

(d) Crafts that are promoted as part-time or seasonal activities should not be ones that require extensive training, since the skills developed will be underutilized.

Agro-based processing industries

Industries that process agricultural products process not only grains but also:

Field crops: grains, oilseeds, fibre crops

Tree and plantation crops: fruits, nuts, grapes, tea, tobacco

Vegetables, flowers and spice crops

Products of animal husbandry, poultry farming, inland and marine fishing, and other animals reared for skins

Products of forestry and wild life

Three characteristics of agro-based industries that need to be taken into account in developing a programme for rural industries are:

(a) Several stages of processing may be necessary before a product reaches the final consumer, e.g., wheat is ground into flour at one stage and made into bread at another; hides and skins are cured at one stage, tanned at another and made into leather goods and shoes at a third. Quite often the dividing line between the end of the agricultural activity and the start of the first stage of the processing or industrial activity is not clear-cut, and enterprises often engage in both agricultural and industrial activities, e.g., cotton production and cotton ginning, dairy farming and milk production and milk pasteurization, sheep ranching and wool production, poultry farming and slaughter, dressing and packing of poultry;

(b) Two categories of processing are often considered suitable for rural industries promotion, in particular, food processing, but also the processing of other products. The first category of processing is processing for a local community. Thus, wheat has to be milled into flour, edible oil has to be pressed, and milk has to be pasteurized for local consumption. The raw materials do not have to be sent out to large, centrally located plants for processing and sent back again for redistribution in the original areas of production, though this does happen as economic activities become more specialized. The second category of processing is in large-to-medium

sized plants meant to serve a larger market. As is evident, the technological level of these two categories varies considerably. Activities in the first category have to be located in villages in any case, but the location in rural areas of those in the second category depends on the industrial locational policies of each country. Both these categories require promotional efforts;

(c) Several by-products arising out of agro-based industrial processing are required in rural areas, and therefore there is an incentive to extract and use them if these establishments are located in rural areas. Examples are wastes arising from pressing vegetable oil-seeds, slaughter-house operations, milling grain and sugar refining;

(d) Since some of these industries use agricultural products that may not store well, processing is required immediately after the agricultural season; therefore, continuity of employment for agricultural labour may be ensured if these activities are located in rural areas. The greater the perishability of the product, the greater is the need to have it processed locally. Year-around processing is possible only for agricultural products that have long storage life or for which facilities are developed for their storage (which is a rural industry by itself).

As stated earlier, the more diversified the agricultural sector and the greater the product range, the greater are the possibilities of promoting rural industries. Moreover, where large central processing operations are economically more appropriate because of proximity or geographical concentration of markets, there are still many preliminary processes that can be efficiently carried out close to the primary production localities, e.g., curing of hides and skins before tanning, logging and saw-mill operations before wood-product manufacture and cleaning and grading of food before preservation. It should also be remembered that ecological conditions largely determine the type of raw materials available for processing. An intensive agricultural area provides grain, oil-seeds, fibre and fruit crops for processing. In an area abounding with forests, industries using wood, cane, barks and tanning materials, honey and spices could be considered. A pastural area provides milk, hides and skins and animal fibres for processing. An area close to the sea provides marine products for processing.

Other rural-resource-based industries

Many other rural resources can be transformed into products for use in rural or urban areas, excluding the extraction and processing of major minerals (in non-urban areas), which require sophisticated technology, specialized management and often their own township, though many rural workers are also attracted to these industries. The industrial and mining activities discussed here include:

Stone quarrying, crushing, grading, pulverizing, cutting and finishing to blocks, slabs and chips

Sand collecting, washing, grading

Clay pit operations

Extracting, grinding, cleaning of mineral pigments

Mining, cleaning, grading of rock salt, solar-salt pan operations

Mining, crushing, burning of gypsum and lime

Mining of other minor minerals
Mining of semi-precious stones
Manufacture of building materials: bricks, tiles, cement products
Manufacture of pottery and ceramic ware
Manufacture of glassware, beads
Processing shells into fine lime, shell products

Quite often the existence of these resources is evident, being visible from the surface, but sometimes their existence is revealed only through prospecting. However, unless an activity has been traditionally carried out or urban entrepreneurs have taken the lead in developing products for urban markets, local entrepreneurs either do not know how to proceed or do not have the resources and skills for this work and therefore specific development efforts are required.

Industries based on non-rural resources and subcontracting

A variety of industries can be, and in several countries have been, promoted in rural areas that do not use rural raw materials and the products of which may or may not have a rural market. The main reason for such a development is to use cheaper labour and land and buildings at low cost. Some of these manufacturing activities can be carried out in small workshops and some in medium-sized establishments, using specially developed skills. Such activities include manufacture of:

Candles from paraffin
Cement products
Textile materials with mill-made yarns
Hosiery goods and jersey fabrics from mill-made yarns (cotton, wool, silk etc.)
Tailored linen goods for hospitals, hotels
Musical instruments, sports goods, costume jewellery
Components for bicycles, sewing machines, small machinery etc. on subcontract from large urban enterprises

Manufacture of components on subcontract has one big advantage in that the producer of components does not have to undertake a sales effort, but quite often large enterprises use such suppliers to cushion losses that may arise from major market fluctuations in demand, and rural producers of components are at a great disadvantage, since they have no alternative outlets.

Components of a programme for promotion of rural industries in integrated rural development programmes

General factors

The nature of an integrated rural development programme, the resources allocated to it and the problems facing the rural communities covered by such a programme will largely determine the scope of the rural industries component. As discussed earlier, an integrated rural development programme should have:

(a) A well-defined objective in terms of the target group(s) to which the programme is largely directed;

(b) A sound institutional base as a result of surveys, planning and consultation, i.e., the programme should be based on adequate surveys and studies of the area; plans should take into account the financial, physical and manpower resources likely to be available; and people to be affected should be consulted and brought into the planning process;

(c) A smoothly functioning structure to mesh the inputs from various sectoral government agencies;

(d) Trained extension agents (single-purpose or multipurpose) in each component activity with supporting organizations and services.

The plans for the area in which the programme is to be undertaken should include development of infrastructure linking villages with nearby towns and cities.

Several elements of national policy are likely to have a major impact on rural industrialization programmes. The first is a legal and promotional disincentive to concentration of all types of industries in large cities only, coupled with a well-directed programme to disperse industry geographically. The experience of several countries is that such a two-pronged approach first pushes industries to provincial and district towns and ultimately helps push certain types of industries to rural growth centres. The first step only, i.e., a ban on industrial concentration in major cities, will not bring the desired results because industrial development requires certain incentives by way of infrastructure. Decentralization programmes help develop this geographically dispersed infrastructure and thus provide the incentive at the other end.

The second element of national policy relates to technological characteristics of industries to be promoted. If a major national bias is given to large, technologically sophisticated industries, using mostly imported plant and equipment, centralization in manufacturing will be encouraged. If however a bias is given to indigenous-equipment-based industries and indigenous manpower and management, then industrialization will grow at the level of technology more easily understood by the masses. Rural industrialization at such a level of technology will have a multiplier effect on the machine-building industry of the country because it will not mean a demand for one or two items of sophisticated equipment, but a demand for hundreds of more easily producible items of equipment.

Industrialization at any level, urban or rural, requires a resource base. The resources may be agricultural (including livestock, forestry, fishery) and mineral. Therefore, national policies and programmes should be adopted for the extensive development and exploitation of these resources and institutions set up to carry out these programmes. As discussed earlier, a rural development programme takes off largely from a well-developed agricultural base; such a programme cannot be implemented in a vacuum.

Finally, though as a concept rural industrialization is attractive, industrialization cannot be pushed into rural localities in all countries, particularly in those in early stages of development where even urban areas have limited physical infrastructure and human resources for industrialization, and much less so in rural areas. In such countries, diversification of the rural economy has necessarily to be at the craft and household-enterprise level. But in countries that have advanced somewhat socially

and economically, a wider range of rural industries is possible. The stage of development reached in the country must be taken into account to arrive at an appropriate programme. All rural development involving diversification of the rural economy and upgrading of economic and social infrastructure in selected localities in the rural milieu has implanted in them the seeds of urbanization. Thus urbanization and industrialization go hand-in-hand, and urbanization seen in this light is something to be welcomed. It is the development of large urban agglomerations with their social problems that is unhealthy. Therefore, a properly conceived urbanization policy, or low-level urbanization as it is sometimes called, can be an asset to rural industrialization and can be reflected in integrated rural development programmes.

Ownership and management structure

As discussed earlier, entrepreneurship for rural industrial enterprises is very limited, especially among the poorer segments of the rural population. Therefore the promotion of possibilities for rural industrial ownership must be assumed by government agencies. Rural development projects need to have expertise not only for surveying resources and markets and planning industrial enterprises, but also for stimulating group ownership. Although it may seem as if rural entrepreneurial talents are lacking, it is the rural migrants to big cities who set up the pavement shops and small workshops after having worked in such shops a short time. Often the opportunity creates the entrepreneur.

Ownership is linked to the availability of capital, a major constraint as far as the rural poor are concerned. Programmes for overcoming this problem have been tried out in various countries, mostly through provision of credit. But here also most credit schemes are either based on collateral or require close supervision of how the credit is used. The latter arrangement increases the cost of credit servicing, and these additional costs are often subsidized under government programmes. A novel scheme in operation in Turkey for rural industrial ventures is to set up credit guarantee co-operatives, where a whole rural community helps in guaranteeing the credit extended to one of its members, and therefore exercises a watch-dog role.

Several studies have shown that financial capacity and ability to mobilize financial resources have a major part to play in observed patterns of entrepreneurship development.[19] Credit schemes and financial support by subsidizing or making freely available results of surveys, feasibility studies and physical planning of industrial enterprises can go a long way in promoting entrepreneurship. In some countries, as in India, credit for rural industrial projects is provided by banking and credit institutions serving the small-industry sector, but in some other countries, as in Iran, it is mostly done by institutions serving the agricultural sector. Credit requirements and arrangements often vary considerably between the agricultural and industrial sectors, and often agricultural credit institutions cannot adequately meet the needs of industrial projects. Whether rural development banks can be developed to meet multisectoral rural development requirements is yet to be tried out on a large scale.

One of the weaknesses of existing rural crafts or industrial activities is the dominance of middlemen, which tends to keep wages and earnings of producers down and prices of products high, though in some cases such middlemen perform a useful entrepreneurial function in undeveloped regions. In the agricultural sector,

[19] *Manpower Development in Rural India, op. cit.*, p.,12.

major changes in the ownership institutions have been carried out through land reforms, often implemented against strong opposition of vested interests. In the rural industry sector, however, it is not so much reorganization of the ownership of productive facilities, which are invariably small and owned by producers, that is necessary, but the reorganization of facilities to enable producers to reach the market directly both to obtain the raw materials and to market the final products. This is often brought about by organizing service co-operatives.

Reorganization of ownership patterns or creation of new ones through the introduction of co-operatives is a fairly common feature of rural industrialization programmes. However, several alternative arrangements within the co-operative structure should be carefully considered. First, industrial activities may be linked to well-established agricultural co-operatives. Here the advantage is that existing management personnel can be used and savings in overheads effected. But often such co-operatives do not take an interest in all types of industrial activities unless they relate to the processing of an agricultural product of the co-operative. Moreover, members of the rural community who are not agriculturists do not benefit from such an arrangement. Secondly, deciding whether processing should be organized as a co-operative of agricultural producers or as a co-operative of industrial processers or producers who use the agricultural product as an input often presents problems.

Formation in each village of a single primary co-operative covering all types of production, consumer and credit servicing and marketing assistance is favoured by many, for it does not split up the residents of villages into different primary co-operatives. But experience shows that membership in a single co-operative leads to complications owing to the variety of products and services handled and question of dividends. In several countries separate co-operatives, vertically integrated (in the form of unions and apex bodies) for major industries such as textiles, ceramics, carpets, and not linked to agricultural co-operatives, have been set up.

Experience to date on forms of ownership is limited. However, a variety of forms of ownership can exist in the rural sector. For example, ownership in the service group of activities can mostly be individual and private, since such activities are largely carried out in one to three man workshop-type of enterprise. Service co-operatives can be set up to group the supply of spare parts or common supplies or for credit. Agricultural processing can easily form part of agricultural production co-operatives, provided that other workers brought into these processing activities are also entitled to membership rights. Craft activities can also be organized as co-operatives (either as production co-operatives or as service co-operatives), particularly if they are large craft groups and vertical unions have been established if the activity is nation-wide. Other rural industries of small to medium scale may be privately owned or, if meant for the weaker sectors of society, may be either government-owned and managed or made into workers' production co-operatives; but each type has its advantages and shortcomings.

The management structure of rural industrial enterprises is basically the same as that in small industries, i.e., functions are mostly carried out by a single person, the working proprietor. But in co-operatives, because of the delicate problems of accountability, procedures become more cumbersome than in a father-son type of enterprise. Special management development programmes are necessary, geared to the level of management personnel in rural enterprises. Very often when the rural enterprise is a sophisticated one requiring management know-how not normally found in a rural milieu, persons are hired from outside the community and reside in

neighbouring urban localities and commute to work. The problems of such enterprises arise largely because of absentee management. In India and Iran, the Government has often provided management assistance in the initial years of operation of medium-sized rural industrial enterprises. But in such cases, if external management is not linked to the training of carefully selected persons from the locality, the absentee management perpetuates itself.

Infrastructural requirements

Industry requires certain types and minimum levels of infrastructure: *(a)* physical (roads and transportation, power supply, water, maintenance and repair); *(b)* commercial (postal and telegraphic communications, banking and credit); *(c)* human resources (skilled manpower). Some of these requirements are common to other sectors of the economy; for example, roads are required for transporting agricultural produce to markets just as much as for transporting manufactures. Most of the requirements change considerably in sophistication depending on the size and category of rural industry. Governments can be influential in orienting infrastructural services towards meeting the needs of rural areas. For example, banks and credit institutions normally tend to service urban communities only; where Governments through various measures have forced them to look forward, as in India, they have found business in rural areas fairly rewarding.

One type of integrated infrastructural institution has been tried out in several countries, namely, the rural industrial estate. Like its urban counterpart, such an estate provides lands and buildings ready for occupation in a concentration location, which helps in reducing the gestation period of small- and medium-sized enterprises and reduces their fixed capital requirements, since these premises can often be rented. Costs for electricity, water and gas supply are reduced because of concentration. Common commercial facilities of banks and post offices are often made available, and possibilities of interservicing between the various units in the estate are a great advantage. However, experience to date on rural industrial estates is not very encouraging. It is largely the suburban ones that have succeeded and not the true rural ones. Some of the reasons for this lack of success are *(a)* lack of entrepreneurship in the community, *(b)* lack of skilled manpower, *(c)* poor advisory services from the government agencies concerned in regard to what industries are possible, and *(d)* poor location with respect to the communications system of the area.

Alternatives to the industrial estate are being tried out. In Iran, a beginning is being made in setting up "workshop clusters" in villages with a potential for growth. The idea is the same as an industrial estate, but the workshop clusters are meant to be located in the heart of the village and intended to house servicing and craft activities that cater to the needs of that village and nearby villages. Repair services for agriculture, crafts etc., common facilities for major craft activities of the area, and improved bakeries, laundries, tailor shops, and metal workshops are intended for these clusters. Larger rural industries are meant to be located on farming estates or in rural areas on main roads connecting important cities. In some places, craft estates or craft workshop clusters have been tried out, but owing to a traditional preference of craft workers for working in their homes (particularly if they are women), success has been limited.

Concentration of several industrial and craft activities at a site has inherent advantages despite its apparent failure to date. Much more experimentation is required to arrive at suitable forms of clustering as a means of strengthening programmes of rural industrialization.

Manpower and skill requirements

One of the major constraints on rural industrialization is lack of skills. Even programmes to improve crafts have had difficulties, since understanding of improved methods and processes requires some degree of education. The complexities of modern farming have made literacy essential. Civil work contractors working in rural areas have preferred to bring in semi-skilled workers from urban areas with them because rural workers on such projects have been unable to understand simple instructions. Educational facilities are less developed in rural areas than in urban ones.

Various alternatives to formal education, called "functional literacy" or "technical literacy", have been tried out. Wherever such programmes exist, they should be closely interwoven with vocational training programmes for rural youth.

Several studies carried out in both India[20] and Iran[21] indicate that there are major differences in the type of skills required in urban and rural industrial enterprises. In rural areas in both manufacturing and technological services "broad-spectrum skills" or "composite skills" are required. Vocational training institutions offer training in trades such as welding, turning, milling, and joinery. While these trades fit into the requirements of modern large-scale industry or specialized repair shops in cities, they are much too specialized for plying a viable trade in rural areas. In Iran, six broad-spectrum trades have been developed for the rural vocational training centres, and in India a revision of trade content to meet the needs of rural areas is in process.

There is also a general preference for informal methods of training and on-the-job training in rural areas partly because the problem of lack of formal education as an entry qualification is overcome and secondly because such training is less costly. However, it is not comprehensive and standards of achievement vary. Therefore the ex-trainees have little mobility.

Over and above this, there are hardly any systematic facilities for training operatives such as tractor drivers, truck drivers, cement mixer operators and processing machinery operators. As agriculture is upgraded in technology and new industrial activities are introduced in rural areas the need for systematic training will increase. If enterprises are to organize such training themselves they need subsidies to cover the costs incurred. The shortage of facilities in supervisory and management development programmes is still more acute in rural areas except in countries having well-developed co-operatives.

In view of these shortcomings in training, Governments will have to take the necessary steps to organize training programmes. Rural education and training requirements should be examined in their entirety and recognized as different from urban ones. The Indian study on rural manpower suggests that for meeting rural needs, after a certain basic level of formal education, there should be three separate

[20] *Manpower Development in Rural India, op. cit.*, p. 14.

[21] Studies carried under UNDP-ILO-IRA-72-009.

streams: one consisting of academic courses; the second, agricultural polytechnical schools, catering to farm and allied sectors; and the third, vocational, craft and technical schools, catering to the rural non-farm sector. It further suggests that the objective of the facilities developed for the second and third streams is to give the large majority of the rural workers in both the farm and non-farm sectors an opportunity to improve their skills and improve their earning capacity. What is therefore necessary from educational and training institutions is not only to develop "composite skills", mostly required in rural areas, but also to combine organized training courses with work experience. All this means that rural education and training institutions must respond much more closely to the nature of manpower demands expected in the region. Integrated area planning and integrated rural development programmes could easily provide the framework for such action.

Government promotional agencies

A key factor in promoting a programme of rural industrialization is the type of government services offered and how these services are organized—whether within the framework of an integrated rural development (IRD) programme or outside it. In India, such services are organized within the framework of IRD programmes (sometimes intensive area or special area programmes), but in Iran, since there is no IRD programme as such, the industrialization component (or the rural non-farm component) is organized as a sectoral programme, though administratively it is placed within the Ministry of Agriculture and Rural Development (formerly in the Ministry of Co-operation and Rural Affairs). One of the major problems faced by IRD programmes in general is to avoid interministerial and interdepartmental conflicts of competence. For this reason, the head of the committee supervising the national agency for IRD programmes is selected from as high a level in the government hierarchy as is possible, sometimes the prime minister himself, as was the case in the early years of the Indian community development programme. Alternatively, sectoral programmes of rural diversification have been preferred in certain countries, and the district or provincial head made responsible for co-ordinating the component sectoral programmes at the intermediate or grass-roots level. But such an arrangement has not necessarily done away with interdepartmental friction. The choice between the two alternatives has to be made by the country concerned, but there is no escape from a co-ordinating point in all IRD programmes, at least at the regional or area level, particularly if the programme as a whole has to be directed to the needs of the rural poor.

At the ministerial level, the question often arises whether ultimate responsibility for a rural industries programme should be placed in a ministry in charge of industrial development, or in a ministry more closely associated with rural development, such as a ministry of agriculture and rural development. There is no straightforward answer to this question. While it is true that in the first alternative, the level of expertise available for the industrial sector as a whole, including rural industries, is of a higher order than in the second alternative, and rural industrial programmes stand a better chance of being co-ordinated with national and regional programmes for industrial development, it is also true that quite often a ministry in charge of industrial development is not convinced of the importance of rural industrialization (as is the case of small-industries promotion programmes in some countries), and the rural industrialization programme suffers from lack of resources and the failure of

the ministry to give it the priority it deserves. In such a case it is much better to be located as in the second alternative until the programme gains momentum, but here also some degree of co-ordination with overall industrial programmes, such as on extent of protection, location, and range of services, is necessary.

The grass-roots promotion structure is another point to be decided. In early experiments, the multipurpose village extension agent was considered the ideal first point of contact of villagers. He could give information on all types of government services, whether in agriculture, industry, education or health. He was also to stimulate village action and to promote innovation. However, as agriculture and other rural activities became more and more complex specialized sectoral extension agents have been used more effectively. Since they cannot be placed in villages, they have moved to more central points in the hierarchy of villages. In the industrial field, provincial-level or district-level industrial promotion personnel have been used up to now. They are multipurpose agents within the manufacturing field, and quite often their placement starts with a comprehensive survey of the industrial potential of a region carried out by a multidisciplinary team assigned from national or provincial headquarters.

A rural industrialization programme should at no time be considered a watertight activity and the exclusive preserve of a district industries officer or provincial industries department. Industrial promotion, whether at the craft level or at a more sophisticated small-scale or medium-scale level, requires provision of credit, promotion of co-operatives and advisory services for them, educational and training programmes etc., all of which are normally responsibilities of other government agencies. An integrated rural development programme can provide the structure for such integration. Moreover, such grass-roots industrial promotion agents have to be knowledgeable about the technological and other types of services they can obtain from back-up institutions, such as more precise information and assistance on drawing up programmes for particular industries, for testing raw materials and final products, and for marketing. Quite often as a programme of rural industrialization is planned out in greater detail new types of back-up institutions may be needed. For example, it has been suggested that some of these programmes may require institutes of rural technology or special communications media or training programmes. Such back-up institutions are best organized at the national level.

An accounting analysis of rural business in Kenya

William Loehr and John P. Powelson***

Rural industrialization is frequently touted as a means of improving income distribution and employment, as well as of slowing migration to the cities. But the debate is still on, whether small-scale, labour-intensive, rural industries are as efficient as their larger, urban counterparts. The problem is the more difficult because many rural businesses do not keep accounts.

In the present study we give accounting-like information for 62 rural businesses in Western Province, Kenya. Reflecting the population, this sample contains mostly traders, some service establishments and only two manufacturers. Our main purpose is to devise a method by which financial operations can be evaluated even though enterprise owners, being illiterate, do not keep books. A secondary purpose is to discover whether the enterprisers in our sample are earning sufficient profits, so that continued business is more attractive to them than migration or other opportunities. We were also interested in the amounts of reinvested earnings, to determine (among other things) whether traders would have the capital with which to convert themselves into manufacturers.

Outside Central Province (which contains Nairobi), Western Province is the most densely populated region of Kenya. An agricultural and trading area with little manufacture, it is dotted with markets that contain string after string of tiny retailers, who largely duplicate each other. Those we studied showed differing ability to catpure business from their neighbours. A supermarket has already appeared in the major city, Kakamega. These events threaten other retailers; one may predict that many will be driven out of business over the next 10 years. The question is whether they will migrate to larger cities, like Kisumu, Nakuru and Nairobi, or whether, with the aid of vocational training, they will find alternative occupation at home. The latter could only be in service establishments or manufacturing. While the subjects of the present study are not primarily manufacturers now, some are good candidates for becoming manufacturers. If one is to encourage manufacturing in a heavily populated, fairly prosperous rural area, first the trading enterprises must be examined.

The efficiency of rural enterprise

The efficiency of rural enterprise has been little studied, and the literature gives us few clues. The World Bank reports that

> " . . . experience . . . suggests that small-scale enterprises do tend to be better adapted than larger ones to local conditions, to using local materials, and to drawing on unskilled or semi-skilled labour . . (but) the methodology of measuring 'efficiency' is little developed, the practical problems of field research

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in this area are enormous, and it will take time before reliable results are available" [1], p. 7.

More research has been undertaken on small-scale farmers, and it is reasonable to suggest that observations of their behaviour may also apply to small-scale businesses. In general, peasant farmers are believed to respond "rationally" to price incentives in selecting both their crops and their inputs. Small rural businesses are often complements to farming (Hymer and Resnick [2]; Hackenberg [3]), a livelihood for vast numbers of the rural population in less developed countries (LDCs) (Liedholm and Chuta [4]; Child and Kempe [5]). Some authors (Stewart [6]) argue that small scale is more efficient than large in certain industries, even in mining (Killick [7]), while still others (Morris and Somerset [8]) believe that small-scale rural producers would be efficient if it were not for obstacles imposed on them by others.

Partnership for Productivity

The present study has its origin in the activities of Partnership for Productivity (PfP) a management advisory service for small-scale businesses, which operates in five countries in Africa. PfP has operated in Kenya since 1970. It is expanding rapidly, nearly doubling the number of consultants and clients in the year between which this study was done and the results compiled for presentation. Numbers in this report refer to the earlier size of PfP, in mid-1977. Twelve consultants operated out of as many small offices in rural marketing centres. The consultants had usually completed four forms of secondary school and had had a year of vocational training plus a three-month intensive course in management, provided by PfP. They were thus trained in accounting, marketing, financial management and business policy. They would travel by bicycle or foot, and only occasionally by bus, to nearby clients. They would offer advice, according to clients' needs, on such topics as plant or store layout, inventory size, credit policy, displays and advertising, selection of products, personnel size and conditions. Their information-gathering came bit by bit. Unanimously, the consultants believed they could nto have obtained financial data without establishing a friendly, confidential relationship over a period of several months to more than a year.

When the study was conducted (1977), PfP had been collecting accounting-like information from its more than 400 clients in Western Province, Kenya, for use not by scholars but by managers making decisions. Balance sheets and profit-and-loss statements were reconstructed by PfP consultants, who examined the physical premises and operations of the enterprises and questioned the proprietors. Slightly over 100 clients had a good enough memory and sufficient interest to participate. Of these, 62 were able to present information that appeared to the authors of this study to be internally consistent and to the PfP consultants (all of them Kenyan) to be a reasonable representation of reality.

The sample is therefore not random. Although some may believe that a sample of only those who could remember their financial information would contain the most successful enterprisers, the PfP consultants believed that was not so, since others (less literate) might have better management capabilities. At any rate, the sample is a cross-section of enterprises showing results that are at least possible, if not representative.

Summary of results

The financial statements are summarized in table 1. In addition to examining the statements themselves, we questioned the PfP consultants, and sometimes the clients directly, on personal and situational variables that might have affected enterprise profits (table 2).

Table 1. Averaged financial statements for clients of PfP

(Kenya shillings)

Item	*Mean*		*Standard deviation*	*Minimum*	*Maximum*
	Profit-and-loss statement[a]				
Sales	113 092		122 781	9 920	67 445
Less cost of goods sold	94 410		113 524	0	623 944
Gross margin on sales		18 682	17 712	2 002	107 097
Less expenses		5 051	7 527	498	52 847
Net profit		13 631	12 568	−334	56 160
Less drawings		5 974	8 254	0	55 405
Reinvested earnings		7 657	10 692	−20 137	47 280
	Balance sheet[b]				
	Assets				
Current assets					
Cash	2 437		3 588	7	20 917
Receivables	796		1 299	0	8 050
Inventory	6 477		6 348	0	26 500
Total current assets		9 710	8 513	429	38 402
Fixed assets					
Furniture	1 346		1 770	0	8 000
Equipment	3 237		14 520	0	112 580
Vehicles	410		1 534	0	10 000
Buildings	9 193		18 073	0	80 000
Land	239		1 559	0	12 000
Other	8		69	0	540
Total fixed assets		14 433	23 783	0	112 580
Total assets		24 143	27 351	1 330	119 780
	Liabilities and net worth				
Current liabilities					
Trade credits	637		2 126	0	13 785
Other credits	1 891		8 153	0	61 000
Total current liabilities		2 528	8 307	0	61 046
Long-term liabilities		0	0	0	0
Net worth					
Starting capital	10 517		18 608	4	87 905
Subsequent investment	2 355		7 477	0	47 000
Reinvested earnings	8 743		11 817	−2 976	61 745
Total net worth		21 615	23 765	830	99 617
Total liabilities and net worth		24 143	27 351	1 330	119 780

[a] Recent 12-month period, ending 1976 or 1977 according to client (see text).

[b] Recent date in 1976 or 1977 according to client (see text).

Table 2. Personal and situational variables[a]

Variable	*Total group n=60-64*	*Petty traders n=39-42*	*Other retailers n=4-5*	*Service n=14-15*	*Manufacturers n=2*
Average age of clients	40	39	39	40	49.5
Per cent male clients	84	42	100	100	100
Average number of years of education	6.0	6.1	6.0	5.6	5.5
Per cent that have had vocational training	41	37.5	0	57	100
Average number of years in business	5.1	4.4	3.6	6.9	7.5
Per cent that started business themselves	92	90	100	93	100
Average other businesses owned per client	0.158	0.171	0.20	0.07	0.50
Per cent that own land	69	62	80	80	100
Average number of acres owned	7.53	5.7	7.6	10.54	18.00
Per cent that have had past businesses	25	22.5	40	21	50
Average percentage of time spent in business (100 = full time)	84	85	65	75	100
Average difficulty with keeping accounts (3 = much, 2 = satisfactory, 1 = little)	1.7	1.6	1.8	1.9	1.0
Per cent that own business premises	37.5	35.7	40	33	100
Per cent that keep regular hours	89	88	80	93	100
Per cent that have telephones	1.6	2.4	0	0	0
Per cent that have electricity	12.5	14.3	20	6.6	0
Average number of family workers (not counting owner)	0.587	0.619	1.00	0.467	0
Average numbers of non-family workers	0.603	0.262	0	1.60	1.50
Per cent that live on business premises	26.6	31.0	0	27	0
Per cent that own their own businesses	90.6	90.5	100	87	100
Management scores					
Good management practices (−11 to +11)	1.9	2.2	2.8	0.7	4.0
Improvement (−11 to +11)	6.1	6.1	6.2	6.1	8.0
Attitude (−11 to +11)	6.1	6.1	7.0	5.6	6.5
Overall score (−33 to +33)	14.3	14.3	16.0	12.4	18.5

[a] *n* varies line by line because for some clients there was no information on a particular point.

Table 1 covers 62 firms that had been in business for an average of five years (standard deviation = 3.7). Many had no employees other than the owner. The average number of family workers (besides the owner) was 0.587 and non-family workers 0.603, for a total of slightly more than one.

Most enterprisers had begun business on capital from their own savings, sometimes combined with loans from family. Most had the security of a hut and land on which to feed their families, so that business earnings were additional to minimum needs. Their average earnings for the year (on labour, including family members, as well as capital) was KSh 13,631 (KSh 8 = $1), although the variation was wide. This return is higher than the alternative of working in (say) a manufacturing job, where the average earning would have been KSh 7,200 [9], even if such a job had been available (and most likely it would not have been). The enterprisers tended to make drawings, not on a regular basis (like a monthly salary), but only for special occasions (such as weddings, funerals or school fees). Thus the average rate of reinvestment was high (56.2 per cent of net earnings).

If average profit is reduced by KSh 9,548 for estimated salaries of owner and family workers, and if another KSh 1,000 is deducted for depreciation, KSh 3,083 would remain (hereafter referred to as "adjusted net profit"), or 14.3 per cent of net

worth. This ratio compares with 18 per cent for grocery stores in the United States of America (Dun and Bradstreet, 1976).

This rate of return would appear to be reasonable both by international standards and by comparison with current interest rates in Kenya. To the owners of firms sampled, however, the important figure was "profit" (including imputed salaries and with no depreciation deducted). PfP consultants believed that this amount, rather than adjusted net profit or rate of return on investment, was the basis for decisions such as whether to remain in business or take alternative employment.

Of interest to PfP itself was whether clients with better management practices earned greater profits. The consultants therefore rated their clients on these practices in an 11 x 3 matrix, covering 11 management areas (cash control, basic documents, accounts, displays, stock control etc.) and three categories: present practices, improvement over time and receptivity to innovations (hereafter referred to as status, progress and attitude, respectively). Each client received one point for being above average (of all PfP clients) on each of the 11 items per category; zero points for being average; and −1 point for being less than average. On this basis, the mean score for status (possible range −11 to +11) was 1.9; for progress, 6.1; and for attitude, 6.1. Given the assumption of no upward bias in consultants' ratings, clients in our sample (those with consistent accounting data) had only slightly better management practices than most PfP clients, but showed greater desire to improve and greater progress. The correlation coefficient for overall management ratings with profits, however, was only 0.28 (with 90% confidence interval estimated at 0.04-0.54). Such a coefficient may be taken as a weak but positive indication that management capacity counts. It ought to be studied further, with a larger sample, before a reliable statement can be made, or before one can be confident on the route taken by relationship (whether management affects profits directly or indirectly via education, age or other variables).

A more positive relationship was found between vocational training and profits. Enterprisers with vocational training earned average profits of KSh 17,440, compared with KSh 11,774 for those without (difference significant at less than 10 per cent). Ordinary (non-vocational) education seems to be important for specialized sellers and owners of service establishments (but statistical significance is not high because the sample was small); that is, the greater the number of years in school, the higher the profits. Surprisingly, the reverse seems to be true for petty traders—the less educated earn more. But once again, these results need to be tested with larger samples.

The overall picture can be summarized as follows: out of over 400 clients of PfP, there is a set of 62 that are able to keep consistent accounts, are relatively stable in their businesses, are learning good management practices and are improving in them. They were able to initiate their businesses because they had the security of land on which to feed their families and had a small amount of risk capital. For the same reasons, they can re-invest a large portion of their earnings. There is some (albeit statistically weak) indication that those with vocational training and better business practices fare better than the others. Those in specialized retailing and services may also earn more than trading. Years of academic schooling appear to correlate positively with profits for "higher-level" businesses, but negatively for petty traders. All these statements must be qualified by wide variations among clients, which weaken the statistical reliability of any findings we can make at the present stage of study. The complete statistical analysis is shown in the annex.

Ratio analysis

Although routine to financial managers and accountants in more developed countries (MDCs), ratio analysis is not commonly found among the tools of development economists. It consists in examining the relationships between specified items in the balance sheet and profit-and-loss statement, which may flash danger signals, not only of approaching illiquidity or insolvency, but also of more mundane elements of operational inefficiency. For example, the current ratio (current assets to current liabilities) may indicate that the firm's normal receipts may not be sufficient to meet obligations as they fall due; the ratio of inventory to working capital may reveal that a firm is wasting resources by keeping inventories that are too large or alternatively losing potential sales because they are too small; the ratio of fixed assets to net worth may indicate that a firm is overcapitalized or undercapitalized; and so forth. The full set of ratios commonly in use, and the manner of analysis, is set forth (with case studies) in Foulke [10] or Sanzo [11].

Development economists are not normally accustomed to use ratio analysis in their judgements about operational efficiency, which are usually based on such aggregate relationships as total inputs to total outputs. This is a pity, for economists are therefore unable to compare their macro-observations with the sums of micro-examinations (of individual firms), which might confirm or challenge their judgements. In efficiency analysis, there is much untapped scope for collaboration between economists and business accountants.

Danger signals often take the form of a firm differing from the mean of its class (industry, locality etc.). But such differences may also be deceptive. A firm may differ because its efficiency is greater than the mean rather than less; mean efficiency may be unduly low. There may also be special reasons for differences, such as location, ownership of a patent, or goodwill among clientele.

In performing ratio analysis, we have compared our sample of firms in Western Province with Dun and Bradstreet reports on "comparable" firms in the United States. But we do not suggest that norms for one country are useful standards for another; indeed, our intuition tells us the opposite. We make the comparison, albeit hesitatingly, because insights into comparative development processes may thereby be gained. If ratios for similar enterprises differ in LDCs from MDCs, why is this so? Because of differing economic conditions? Because firms are not alike in terms of scale, proximity of suppliers, quality of output, cost of inputs or tastes of consumers? Because of different technologies? Or because of differing management capabilities and business efficiencies? Our present study does not examine these questions, but we believe we are suggesting a potentially fruitful area for further collaboration between accountants and economists.

Ratios for firms sampled are set forth in table 3. The upper section displays the ratios of the average profit-and-loss statement and balance sheet of table 1; the middle section, the comparison with United States firms; and the lower section, the unweighted averages of ratios for firms in Western Province (the number *(n)* of firms varies from ratio to ratio because any ratio with zero denominator is omitted). The types of ratio are discussed briefly below.

Table 3. Ratio analysis for 62 small-scale businesses in Western Province, Kenya, 1977

Item	*Current ratio*	*Profit/ sales*	*Profit/ net worth*	*Sales/ net worth*	*Sales/ inventories*	*Sales/ working capital*	*Liabilities/ net worth*	*Inventory/ working capital*	*Fixed assets/ net worth*	*Cost of goods sold/ sales*	*Drawings/ sales*
Average statements											
Overall	3.84	0.04	0.19	5.23	17.46	15.75	0.12	0.90	0.67	0.83	0.05
Petty traders	10.35	0.03	0.18	6.66	19.51	14.82	0.65	0.76	0.55	0.88	0.05
Specialized sellers	2.90	0.08	0.22	2.94	8.91	7.52	0.21	0.84	0.61	0.72	0.07
Service	1.18	0.05	0.11	2.45	13.23	62.48	0.22	4.72	0.96	0.63	0.09
Manufacturers	1.95	0.13	1.03	3.20	25.45	32.93	0.26	1.29	0.75	0.77	0.06
United States data (1976)											
Grocery stores	1.68	0.03	0.15	0.04	12.20	10.65	0.73	0.69	0.36	n/a	n/a
Family clothing	2.84	0.02	0.07	0.03	2.30	5.08	0.76	1.02	0.16	n/a	n/a
Bakery products	2.01	0.02	0.10	5.55	25.80	12.41	0.85	0.60	0.76	n/a	n/a
Grain mill products	2.25	0.02	0.14	5.49	13.30	8.85	1.00	0.81	0.54	n/a	n/a
Averages for firm in Western Province											
All firms											
Ratio	30.84	0.16	1.33	10.19	34.91	18.37	0.17	0.78	0.48	0.76	0.07
Number	35.00	64.00	62.00	62.00	61.00	61.00	62.00	62.00	62.00	64.00	64.00
Standard deviation	58.45	0.15	1.60	14.01	45.12	19.90	0.50	1.10	0.38	0.21	0.10
Minimum	0.12	−0.02	−0.02	0.44	1.66	−37.28	0.00	−2.84	0.00	0.00	0.00
Maximum	206.05	0.73	8.23	92.83	220.13	92.83	3.16	6.11	1.42	0.96	0.50

Ratio	41.05	0.11	0.98	9.82	30.88	16.49	0.05	0.57	0.41	0.85	0.05
Number	17.00	42.00	40.00	40.00	40.00	39.00	40.00	40.00	40.00	42.00	42.00
Standard deviation	67.96	0.08	0.91	9.82	32.92	17.11	0.14	0.70	0.34	0.08	0.05
Minimum	0.77	−0.02	−0.02	0.87	2.22	−37.28	0.00	−2.84	0.00	0.48	0.00
Maximum	196.52	0.49	4.46	56.35	179.82	77.26	0.80	1.11	1.18	0.96	0.25
Specialized sellers											
Ratio	45.48	0.17	1.77	10.04	24.72	12.27	0.71	1.10	0.34	0.70	0.07
Number	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Standard deviation	14.52	0.09	2.08	12.18	19.38	11.47	1.37	1.41	0.33	0.14	0.06
Minimum	1.31	0.03	0.01	0.44	1.66	1.79	0.002	0.10	0.01	0.50	0.00
Maximum	206.05	0.27	5.35	30.81	45.23	31.00	3.16	3.53	0.75	0.86	0.13
Service											
Ratio	12.74	0.30	2.08	11.48	38.18	21.75	0.32	1.05	0.67	0.54	0.13
Number	12.00	15.00	15.00	15.00	14.00	15.00	15.00	15.00	15.00	15.00	15.00
Standard deviation	14.52	0.22	2.56	23.27	57.12	24.99	0.56	1.47	0.45	0.31	0.19
Minimum	0.12	0.04	0.06	0.51	3.32	−2.39	0.00	−0.09	0.00	0.00	0.02
Maximum	40.20	0.73	8.23	92.83	196.28	92.83	1.96	6.11	1.92	0.94	0.78
Manufacturers											
Ratio	1.27	0.20	1.66	8.31	118.22	44.86	0.21	2.25	0.70	0.75	0.06
Number	1.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Standard deviation	0.00	0.07	0.65	0.55	144.12	38.36	0.29	3.06	0.27	0.11	0.00
Minimum	1.27	0.15	1.20	7.92	16.32	17.73	0.00	0.08	0.51	0.67	0.06
Maximum	1.27	0.24	2.12	8.70	220.13	71.98	0.41	4.41	0.89	0.83	0.06

Current ratio (current assets to current liabilities)

In MDCs, the current ratio tests a firm's security against illiquidity. But in areas where is is customary to roll over unpaid accounts, and where the due date thus becomes flexible, it is difficult to distinguish a current from a long-term claim, and the current ratio may lose its meaning. Even so, firms with very high current ratios, or high ratios of profits to sales and profits to net worth, should be examined to determine whether they can make better use of credit, or whether their inventories are excessive.

Ratio of profits to sales

At break-even point, the ratio of profits to sales will be zero (and negative below that point). As sales expand thereafter, the ratio becomes increasingly positive, up to a point of diminishing returns. By comparison with industry norms, it is therefore possible to hazard a tentative judgement on whether the firm is operating at optimal sales volume (or whether further promotion is in order).

The profit ratios (both profits to sales and profits to net worth) are based on adjusted net worth (i.e., after deductions for inputed salaries of owner and family). The average ratio for the petty traders studied in Western Province is the same (0.03) as it is for grocery stores in the United States. But the ratios for specialized sellers, service establishments, and manufacturers are considerably higher than for their United States counterparts. While these differentials may have no meaning whatsoever, they may also indicate that the latter type of enterprise could profitably expand sales by further promotion. This judgement corresponds with the informal views expressed to us by PfP consultants, that their clients, being risk-averters, were reluctant to engage in sales promotion, in which they had little experience. They may fear (excessively) that income from expanded sales will not cover the promotional cost.

Ratio of profits to net worth

The ratio of profits to net worth, which is crucial in middle developing countries, may not carry the same prestige among small-scale enterprisers of Western Province. There was some evidence (though far from conclusive) that the goal of many PfP clients was to maximize total return (including labour) and not the profit ratio. In fact, they often did not have a clear idea of how much they had invested. Our own guess is that net worth (a residual) is the least reliable item on the balance sheet (table 1). If there are few (or no) alternative outlets for capital investment, or if the alternative is to lend to relatives who do not repay, then the amount of investment in an enterprise becomes a function of capital availability and alternative consumption demand. The potential rate of return may not be a factor influencing decisions. Even so, the adjusted rate of net profit (to net worth) for all enterprises except manufacturing enterprises appears "normal" by international standards. The ratio for manufacturing enterprises is high, but the sample is too small ($n = 2$) for a significant judgement.

Sales to net worth; sales to inventories (turnover ratio); sales to working capital

The ratio of sales to net worth reveals the volume of activity undertaken with a given amount of investment; if too great, the firm may be over-extending itself; if too small, it may be wasting its potential. The ratios of sales to inventories and of sales to working capital may indicate whether the inventory size is optimal.

All three ratios for the Western Province firms sampled are significantly higher than for corresponding firms in the United States. No *a priori* conclusion can be reached from this, however. Different locational factors (e.g., distance from suppliers, lack of transportation) may be the explanation. When questioned, however, the PfP consultants believed that, for the most part, their clients might be over-extending themselves by carrying on a greater volume of business than their net worth, or working capital, or inventories could support. There is, of course, everything to be said for using one's resources to the utmost. A problem will ensue only if lack of resources leads to the loss of sales and profits. Once again, the ratios are indicative only; further study of individual firms is necessary before useful judgements can be made.

Debt-equity ratio

Firms in our sample made little use of credit; therefore (except for specialized sellers) the debt-equity ratio is low.

Inventory to working capital

The ratio of inventory to working capital sheds light on whether a firm is maintaining a proper relationship between inventory on the one hand and total working capital on the other. A firm may increase its activity while keeping its turnover ratio constant. Unless the present ratio is used as a supplement, such a firm may discover that its activity is becoming limited by inadequate use of credit (either in buying or in selling).

Except for service establishments, the ratios do not appear significantly different from those of their United States counterparts. Quite likely the reason is that although United States firms make greater use of credit, their borrowings and lendings tend to cancel each other out. Because working capital (assets minus liabilities) may therefore be the same for firms that do and do not use credit, this ratio is not very useful in making observations about comparative development. But it may be highly significant in determining any imbalance (between borrowing and lending) for an individual firm.

Fixed assets to net worth

In general, the lower the ratio of fixed assets to net worth the better, for high ratios may indicate waste of capital, which puts a firm at a disadvantage vis-à-vis competitors.

The greater ratio for the petty traders sampled in Western Province, compared with grocery stores in the United States, may well be due to their smaller scale, for small firms may require more fixed assets relative to net worth than large. If so, economies of scale would be possible, and one may venture to predict that supermarkets, once they become popular, will make serious inroads into the sales of Western Province petty traders.

Cost of goods sold to sales

The ratio of cost of goods sold to sales is not normally published by Dun and Bradstreet, so we have no United States comparison. We thought it worth while to include it, if only to calculate average mark-up. It turns out that the cost of goods sold is a very high percentage of the selling price for all firms except service establishments; hence average mark-ups are very low (e.g., 13.6 per cent for petty traders). The high ratio also indicates that expenses (other than cost of goods sold) are very low. With little or no taxes to pay, virtually no use of the telephone, most enterprises without electricity, no heating costs because of the mild climate, use of family labour and low wages for non-family labour, it turns out that the bulk of inputs consists in the cost of acquiring or manufacturing the goods that are sold.

Drawings to sales

The ratio of drawings to sales is also not published by Dun and Bradstreet. We calculated it to test the oft-heard rumour that small business owners in developing countries tend to use the proceeds of sales for personal expenditures and therefore they do not stay in business long. All our evidence is that, for our sample, this assertion is not true. Drawings averaged only 5 per cent of net sales.

Standard deviations

The standard deviations in both the items of the financial statements and most of the ratios are remarkably high. This fact would indicate a wide divergence among individual firms and a potential area for investigation of why this is so. It has often been remarked, with reference to small-scale agriculture, that a significant improvement in the incomes of a community can be achieved if only the producers with lowest productivity could be brought up to the level of those neighbours whose productivity is highest. The same may be so for small businesses. Once again, we simply open the door for further research.

Conclusions

The contribution of the present study to a knowledge of small rural businesses is modest. Not only is our sample small, but it is taken from those clients of PfP who have been able to remember their transactions and to respond to questionnaires. The sample is not necessarily representative of all small businesses, even for the geographic area that it covers.

We have, however, done three things. First, we have compiled the accounting estimates for 62 small businesses. Judged from the rates of earnings (including "salaries" for owners), these businesses form attractive alternatives to entering the job market, either locally or in cities. In addition, the ratio of reinvestment to earnings is high, a positive factor for rural capitalization. Secondly, we have performed a ratio analysis similar to those done by financial accountants in MDCs. Although results are tentative, they nevertheless suggest that any belief among economists that small enterprises are efficient and responsive to prices needs further examination. This belief may be a correct assessment of enterprise responses to gross or obvious signals, while at the same time there may be potential for fine improvements. We suggest that answers to these questions require collaboration between development economists and financial accountants, which has heretofore been minimal. Finally, we have tested the relationship between certain personal and situational variables (e.g., education management capacity, enterprise type, percentage of time devoted by owner to business) and profits. We found a weak positive relationship between education and management capacity on the one hand and profits on the other. These relationships are summarized at the beginning of this article, and an expanded statistical interpretation is included in the annex. The enterprises covered showed such high standard deviations in so many items that we are led to believe significant improvements in efficiency would occur through more extensive use of management techniques already known within the community.

STATISTICAL ANNEX

What explains profits?

I. *Correlation analysis*

	Correlation coefficient	*Number in sample*	*90% confidence interval (approximate)*
(1) Those firms that sell more earn higher profits (*r* for profit, sales).	0.690	64	+0.55 to +0.78
This relationship seems to depend on:			
Enterprise type: it applies more to those that sell goods than to those that perform services			
Petty traders	0.833	42	+0.66 to +0.90
Specialized sellers	0.830	5	−0.15 to +0.98
Service	0.478	15	−0.02 to +0.78
It does not seem to depend on:			
Vocational training			
Those with training	0.677	25	+0.38 to +0.84
Those without training	0.698	36	+0.45 to +0.89
Sex			
Males	0.692	54	+0.55 to +0.82
Females	0.706	10	+0.12 to +0.92

What explains profits? *(continued)*

	Correlation coefficient	*Number in sample*	*90% confidence interval (approximate)*
(2) Owners with more education (number of years in school) earn higher profits if they are engaged in specialized selling or service trades, but not if they are petty traders. However, the sample is too small for high confidence (*r* for profits, number of years in school).			
Service	+0.587	14	+0.08 to +0.84
Specialized sellers	+0.859	5	−0.05 to +0.05
Petty traders	−0.267	40	−0.53 to +0.05
All three groups together	+0.036	60	−0.22 to +0.33
(3) There is a weak indication that profits may vary with management score, as follows (for the overall sample).			
Score on status (*r* for profit, status)	+0.208	62	−0.06 to +0.46
Score on progress (*r* for profit, progress)	+0.156	62	−0.12 to +0.43
Score on attitude (*r* for profit, attitude)	+0.272	62	+0.03 to +0.52
Overall management score (*r* for profit, management score)	+0.280	62	+0.04 to +0.54
The dependence of profit on management score may be greater for specialized sellers than for petty traders, and it may be very low for service establishments. However, once again the sample is too small for high confidence (*r* for profit, management score).			
Specialized sellers	+0.519	5	−0.57 to +0.93
Petty traders	+0.279	41	−0.02 to +0.55
Service establishments	+0.198	15	−0.34 to +0.63
(4) The percentage of time that the owner devotes to his business probably has some bearing on profits, but once again the sample is too small for high confidence (*r* for profit, time spent in business).			
Service	+0.245	15	−0.30 to +0.66
Specialized sellers	+0.655	5	−0.45 to +0.95
Petty traders	+0.138	42	−0.20 to +0.43
All three groups together	+0.221	64	−0.03 to +0.45

	Correlation coefficient	*Number in sample*	*90% confidence interval (approximate)*
(5) Profits appear not to be closely related to the length of time the firm has been in business (*r* for profit, number of years in business).			
Service	−0.121	15	−0.58 to +0.41
Specialized sellers	+0.265	5	−0.72 to +0.88
Petty traders	+0.154	41	−0.19 to +0.45
All three together	+0.050	63	−0.20 to +0.30

II. *Analysis of variance*

	Mean (KSh)	*Standard deviation (KSh)*	*Inter-level (d.f.)*	*F (d.f.)*
(1) Firms whose owners have had vocational training earn higher profits than those whose owners have not.				
With training	17 440	16 148	1.58	3.04
Without training	11 774	9 153	(35.57)	(1,59)
(2) Firms whose owners own land earn higher profits than those whose owners do not.				
Owners of land	15 526	13 655	2.14	3.31
Non-owners of land	9 462	8 672	(57.64)	(1,62)
(3) Females may earn more profit than males, but the sample is too small for high confidence.				
Males	13 018	13 050	1.13	0.82
Females	16 944	9 404	(17.74)	(1,62)
(4) Profit is negligibly greater (no statistical significance) for those who own their own businesses than for those who do not. The sample is very small.				
Owners of businesses	13 869	12 676	0.47	0.21
Non-owners of businesses	11 339	12 311	(6.60)	(1,62)
(5) Profit does not appear to depend on enterprise type, despite weak indicators that service enterprises may be earning more than the other two.				
Service establishments (n=15)	12 164	14 386		
Petty traders (n=42)	13 074	12 141		
Specialized traders (n=5)	16 429	10 392		
All three groups (n=62)				

What explains profits? *(continued)*

	Mean (KSh)	*Standard deviation (KSh)*	*Inter-level (d.f.)*	*F (d.f.)*
Interlevel data				
Petty traders/specialized			−0.66 (6.07)	
Petty traders/service			0.21 (22.58)	0.21 (2,59)
Specialized/service			0.71 (11.97)	

III. *Regression analysis*

On an overall basis, regression analysis tells very little about profits because of the low coefficient of determination. When firms are disaggregated into petty traders, specialized sellers and service establishments, however, the dependence of profits on management score for petty traders is weakly confirmed. Education (number of years in school) seems to be an explanatory variable in the case of specialized sellers and service establishments. In an unexpected result (shown also in correlation analysis), education appears to be negative for petty traders (the less schooling, the greater the profits). However, the low coefficient of determination for petty traders also indicates that much is left unexplained. Higher coefficients occurred for service establishments and specialized sellers.

Petty traders ($R^2 = 0.28$; F-ratio = 3.24; d.f. = 4,34)

Variable	*B-weight*	*Beta-weight*	*Standard error*	*F to remove*
Overall management score	10.21	0.69	2.19	7.13
Education	−21.99	−0.47	7.03	6.29
Number of non-family workers	63.36	0.28	33.11	3.66
Management score for status	−17.57	−0.55	9.32	3.64
Constant	140.14			

Specialized sellers ($R^2 = 0.74$; F-ratio = 5.67; d.f. = 1,2)

Variable	*B-weight*	*Beta-weight*	*Standard error*	*F to remove*
Education	54.72	0.86	26.53	5.67
Constant	−164.03			

Service establishments ($R^2 = 0.60$; F-ratio = 3.32; d.f. = 4,9)

Variable	*B-weight*	*Beta-weight*	*Standard error*	*F to remove*
Education	29.38	0.71	9.04	9.44
Management score on attitude	9.69	0.38	5.65	3.15
Number of family workers	61.99	0.28	52.95	1.63
Number of non-family workers	−13.58	−0.30	9.65	1.60
Constant	−106.01			

Overall ($R^2 = 0.12$; F-ratio = 2.56; d.f. = 3,55)

Variable	*B-weight*	*Beta-weight*	*Standard error*	*F to remove*
Overall management score	3.25	0.24	1.71	3.48
Time devoted to business	5.20	0.16	4.17	1.47
Number of family workers	26.92	0.14	24.11	1.26
Constant	−22.55			

What explains reinvested earnings?

I. *Correlation analysis*

	Correlation coefficient	*Number in sample*	*90% confidence interval (approximate)*
(1) The amount of reinvested earnings varies positively with the amount of profits. (Those who earn more reinvest more.) There are weak indications that this relationship is greatest for service establishments and least for petty traders (*r* for reinvested earnings, profits).			
Service establishments	0.927	15	+0.78 to +0.97
Petty traders	0.659	42	+0.43 to +0.80
Specialized traders	0.810	5	−0.20 to +0.97
All three groups together	0.759	64	+0.62 to +0.84
(2) The amount of reinvested earnings correlated with overall management score for specialized sellers, but the small number in the sample reduces confidence. There is low positive correlation for service establishments and negligible for petty traders (*r* for reinvested earnings, overall management score).			
Specialized sellers	0.737	5	−0.34 to +0.96
Petty traders	0.085	41	−0.22 to +0.38
Service establishments	0.118	14	−0.41 to +0.59
All three groups together	0.158	62	−0.11 to +0.40

II. *Analysis of variance*

	Mean (KSh)	*Standard deviation (KSh)*	*Inter-level t (d.f.)*	*F (d.f.)*
(1) Those who have had vocational training reinvest more (annual basis) than those who have not.				
With training	1 145	1 310	2.01	4.71
Without training	548	836	(38.52)	(1,59)

What explains reinvested earnings? *(continued)*

	Mean (KSh)	*Standard deviation (KSh)*	*Inter-level t (d.f.)*	*F (d.f.)*
(2) They also have more cumulative reinvested earnings over time, (warning: these data were taken as balance sheet residuals and therefore contain net errors and omissions).				
With training	11 878	16 308	1.05	1.24
Without training	7 037	7 623	(41.36)	(1,35)
(3) But reinvested earnings (annual basis) appear to be about the same regardless of sex.				
Males	772	1 067	0.10	0.01
Females	731	1 135	(12.81)	(1,62)
(4) There is insufficient evidence that reinvested earnings depend on enterprise type, despite an indication (statistically insignificant) that specialized sellers reinvest more.				
Specialized sellers (n = 5)	1 025	997		
Petty traders (n = 42)	694	1 035		
Service establishments (n=15)	721	1 210		
Interlevel data				
Specialized/petty traders			0.69	
			(5.62)	
Specialized/service			−0.55	0.21
			(10.23)	(2,59)
Service/petty traders			0.07	
			(22.83)	

III. *Regression analysis*

Regression analysis indicates that for service establishments, education may be an important variable in determining reinvested earnings, and for specialized sellers age may be an explanatory variable. However, profit was not entered as a separate independent variable; therefore, the effect of education may be felt via profit. Aside from the above, little is learned from regression analysis, since, except for specialized sellers (n = 5), the coefficient of determination is low.

Petty traders (R^2 = 0.09; F-ratio = 1.74; d.f. = 2,36)

Variable	*B-weight*	*Beta-weight*	*Standard error*	*F to remove*
Number of non-family workers	45.05	0.24	30.38	2.20
Number of acres of land held	0.80	0.20	0.65	1.52
Constant	38.81			

Specialized sellers ($R^2 = 0.90$; F-ratio = 8.74; d.f. = 1,2)

Variable	*B-weight*	*Beta-weight*	*Standard error*	*F to remove*
Age	11.53	0.90	4.50	8.74
Constant	−349.87			

Service establishments ($R^2 = 0.45$; F-ratio = 4.53; d.f. = 2,11).

Variable	*B-weight*	*Beta-weight*	*Standard error*	*F to remove*
Education	59.83	0.58	24.93	6.20
Constant	−59.17			

Overall ($R^2 = 0.13$; F-ratio = 2.74; d.f. = 3,55)

Variable	*B-weight*	*Beta-weight*	*Standard error*	*F to remove*
Number of acres of land held	1.15	0.28	0.56	4.23
Education	8.52	0.22	5.07	2.67
Management score for attitude	3.83	0.14	3.44	1.21
Constant	−28.07			

What difference does vocational training make?

(Analysis of variance)

		Mean (KSh)	*Standard deviation (KSh)*	*Inter-level t (d.f.)*	*F (d.f.)*
(1)	Those with training earn higher profits.				
	With training	17 440	16 148	1.58	3.04
	Without training	11 774	9 153	(35.57)	(1,59)
(2)	Those with training have greater reinvested earnings (annual basis).				
	With training	1 145	1 310	2.01	4.71
	Without training	548	836	(38.52)	(1,59)
(3)	Those with training also have greater cumulative reinvested earnings.				
	With training	11 878	16 308	1.35	2.35
	Without training	7 037	7 623	(30.54)	(1,57)
(4)	The ratio of profit to net worth does not depend on vocational training (differences are insignificant).	*(Ratio)*	*(Ratio)*		
	With training	1.297	1.531	0.20	0.03
	Without training	1.384	1.724	(55.30)	(1,57)
(5)	Those with training have more sales, but we have low confidence in the data.	*(KSh)*	*(KSh)*		
	With training	13 045	14 866	0.64	0.46
	Without training	10 820	10 535	(47.57)	(1,59)

What difference does enterprise type make?

(Analysis of variance)

		Mean (KSh)	*Standard deviation (KSh)*	*Inter-level t (d.f.)*	*F (d.f.)*
(1)	Petty traders sell more than specialized sellers or service establishments.				
	Petty traders (n = 42)	134 118	142 448		
	Specialized sellers (n = 5)	90 800	39 973		
	Service (n = 15)	55 793	49 815		
	Interlevel t				
	Petty traders/specialized			1.52 (26.70)	
	Petty traders/service			3.07 (56.92)	2.37 (2,59)
	Specialized/service			1.58 (10.55)	
(2)	Service establishments may earn greater profits than petty traders, who in turn earn more than service establishments, but the differences are not statistically significant.				
(3)	Specialized sellers may reinvest more than the other two types, but the differences are not statistically significant.				
(4)	Specialized sellers probably hold greater assets than service establishments, which in turn have greater assets than petty traders, but differences are not significant.				
	Specialized sellers (n = 5)	37 242	42 855		
	Service (n = 15)	27 846	35 868		
	Petty traders (n = 40)	21 116	21 861		
	Interlevel t				
	Specialized/service			0.44 (6.94)	
	Specialized/petty traders			0.82 (4.39)	0.92
	Service/petty traders			0.68 (18.61)	

What difference does sex make?

(Analysis of variance)

		Mean (KSh)	*Standard deviation (KSh)*	*Inter-level t (d.f.)*	*F (d.f.)*
(1)	Females have more sales than males, but confidence level is low.				
	Females (n = 10)	151 864	140 015	0.97	1.18
	Males (n = 54)	105 912	119 932	(12.11)	(1,62)
(2)	Females earn more than males, but confidence level is low.				
	Females (n = 10)	16 935	9 404	1.13	0.82
	Males (n = 54)	13 018	13 050	(17.74)	(1,62)
(3)	Reinvested earnings are approximately equal by sex.				
	Females (n = 10)	7 314	11 353	−0.10	0.01
	Males (n = 54)	7 716	10 674	(12.81)	(1,62)
(4)	Males have more assets, but confidence level is low.				
	Females (n = 9)	16 250	10 378	−1.74	0.87
	Males (n = 53)	25 483	29 126	(39.03)	(1,60)
(5)	Males have higher net worth, but confidence level is low.				
	Females (n = 9)	14 221	8 281	−1.94	1.01
	Males (n = 53)	22 871	25 316	(43.64)	(1,60)

(Correlation analysis)

(1) Profit correlates more closely with number of years in business for females than it does for males.

Females (n = 10) r = 0.792; 95% c.i. = +0.30 to +0.94
Males (n = 53) r = 0.031; 95% c.i. = −0.24 to +0.36

(Regression analysis)

Total assets are explained, for females, by number of years in business, negatively by time spent in business, and age; but for males it is explained by number of non-family workers, number of family workers, management score for attitude, number of years in business, and negatively for time spent in business.

Females (R^2 = 0.90; F-ratio = 11.98; d.f. = 3,4)

Variable	*B-weight*	*Beta-weight*	*Standard error*	*F to remove*
Number of years in business	35.67	0.77	6.93	19.88
Time spent in business	−17.93	−0.84	3.19	20.69
Age	6.62	0.53	1.97	9.13
Constant	131.57			

What difference does sex make? *(continued)*

(Regression analysis) (continued)

Males ($R^2 = 0.50$; F-ratio = 8.85; d.f. = 5,44)

Variable	*B-weight*	*Beta-weight*	*Standard error*	*F to remove*
Number of non-family workers	75.54	0.48	16.89	19.58
Number of family workers	124.63	0.29	46.29	7.25
Management score for attitude	25.34	0.35	7.69	10.56
Time spent in business	−31.20	−0.38	8.52	11.98
Number of years in business	12.40	0.16	8.20	2.10
Constant	492.42			

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Industrialization in relation to integrated rural development with reference to Bangladesh

*M. T. Haq**

Industrial development as part of an integrated rural development programme

Scope and objectives of integrated rural development

No less than three fourths of the population of the developing countries live in rural areas[1] and are poor. The vast majority—about 85 per cent of the 750 million poor in the developing world—is considered to live in absolute poverty based on the arbitrary criterion of an annual *per capita* income equivalent to $50 or less. The remaining 15 per cent is judged to live in relative poverty—having income above the equivalent of $50 but below one third of the national average *per capita* income. Three fourths of those in absolute poverty live in the developing countries of Asia.[2] Agriculture is the principal occupation of four fifths of the rural poor, including the poorest group of small-scale farmers, tenants, share-croppers, landless workers and their families. The objective of rural development is to reduce rural poverty, and as such these are the sections of the rural population that must form the target groups to which the benefits of rural development should justly accrue.

The strategy for rural development, focusing on poverty, must be designed to increase production and enhance productivity. It must also be designed to ensure that the basic needs of the rural poor—adequate food and nutrition, clothing, shelter, education and health care—will be met. "A national programme of rural development should include a mix of activities, including projects to raise agricultural output, create new employment, improve health and education, expand communications and improve housing."[3] The objectives of rural development should therefore extend beyond any particular sector.

Although governments, individuals, institutions and programmes have been arrayed against it, poverty still continues to be the way of life of most of the world population, and its elimination or even alleviation has proved to be elusive. Rural development is a complex process; and because of political, economic, technical, institutional and human factors, rural development programmes are particularly difficult to plan and implement. First, the problems and prospects of rural development vary from country to country. A programme of rural development, therefore, needs to be country specific. Secondly, as rural development must be the responsibility of the country itself, it demands national awareness and commitment by the Government in both planning and execution of the rural development programme in all sectors, which in turn means that new government machinery must

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[1] *Industrial Development Survey: Special Issue for the Second General Conference of UNIDO* (United Nations publication, Sales No. 74.II.B.14), p. 239.

[2] These statistics are from *Rural Development*, Sector Policy Paper (Washington, D.C., World Bank, 1975), p. 4.

[3] *Ibid.*, p. 3.

be set up and existing machinery adapted accordingly and the necessary resources must be made available from all sources, both internal and external A third important feature of a rural development programme is that it eventually encompasses all sectors or disciplines of economic and social development. The machinery of the national government, which is divided into water-tight compartments, therefore, needs to be adapted to permit an integrated approach to rural development.

Integrated rural development must cover many activities besides cultivation, on which the main emphasis must always remain because agriculture plays the dominant role in rural development. These activities include creating complementary employment opportunities in the processing of agricultural raw materials and the production of a variety of agricultural tools and equipment. These auxiliary activities and the development of small-scale and cottage or handicraft industries stimulate the growth and modernization of the rural sector and help to bridge the gap separating it from the urbanized, modern sector. Rural development needs construction and land improvement activities like bunding, levelling, draining, ditching and fencing. It implies education of the rural population together with manpower training. Health and other services must be provided. Thus policies oriented to rural development need to be integrated, and the machinery for administrating these policies at the national, regional, local and village levels needs to be set up, taking into account the multisectoral and interdisciplinary nature of rural development.

To improve the quality of life of the rural population, the rural poor must be involved in the development process; they must participate in decision making and in implementing those decisions; their energies must be mobilized to increase their productivity and enhance their self-reliance. This difficult task can be accomplished only by setting up appropriate institutions at different levels.

Rural development should proceed in terms of area development, which is emphasized in some countries. Area development calls for specific programmes locally prepared and tailored to local conditions. The needs of the rural poor are focused upon directly by promoting diversified crop and integrated farming systems, linked with training, social services and rural works programmes. Area or regional development programmes can embrace a great variety of objectives and take many forms. The primary objective of some area schemes may be not so much to help the poor farmers as to generate additional output to be marketed. They may emphasize the production of one or two major crops and may provide services to growers in the form of a technical package and credit and marketing arrangements, combined with control of farm operations and supervision of credit.

Rural development programmes are characterized by careful definition of the needs and resources of the target population, detailed planning of preparation and implementation, phasing of multisectoral components and the setting up of or reorganization of related institutions. The primary objective of the programme is to provide resources and services in selected rural areas in order to increase employment, raise rural living standards by introducing directly productive activities and improve basic social infrastructure and production services. Foreign technical and financial assistance may be available for these programmes, and new institutional arrangements may be introduced for their implementation.

Secondly, there is the sector approach under which the types of activity are usually organized on a nation-wide basis. These activities may or may not serve the specific needs of the rural poor. The benefits of these activities are not confined to a

particular group. Roads, schools and health centres constructed under a public works programme in rural areas, for example, bring benefits to all. These are essential components of programmes of integrated rural development.

Other sector programmes—those concerned with the provision of feeder roads, village electrification, water supplies, health facilities and the promotion of rural industry—are important means of carrying benefits to the rural poor. The major issues here concern the need to integrate such programmes with programmes of rural development and with particular projects and with the choice of design appropriate to rural conditions.

The role of industry in integrated rural development

Along with other sectors of economic and social development, industry must be accepted as an important component of any integrated rural development programme. The nature and pattern of rural industrialization, both small-scale and cottage or handicraft industries will, however, depend on the material and human resources of the area concerned. In the formulation and execution of an integrated rural development programme, the role of rural industrialization has not been adequately recognized, in spite of its importance, nor is it always reflected in the rural development programmes of the developing countries.

Industrialization in general is also of great significance to rural development. Industry helps develop the skills and disciplines necessary for modern economic society. It is looked upon as the leading means of breaking the traditional barriers to growth.

Although industrialization has brought about some changes in the economic structure of the developing countries, its impact on the life of the vast majority of the common people of these countries still leaves much to be desired. It has been argued that agriculture has been neglected and industrialization has not been successful in solving the problems of mass poverty and underemployment in the poor countries. As in the developed countries, industrialization has worsened the world-wide phenomenon of urban concentration in the developing countries. It has led to the urban-rural "dual economy" gap in many countries, while it has failed to sustain the quality of life for the urban poor. Industrialization of the low-income countries and the policies connected with it that have been hitherto pursued have not brought the expected benefits to the lives of the bulk of the population. If industrialization is to have a broad impact on living conditions in the less developed countries, it must be closely interwoven with the development of all other sectors of the economy, especially with agriculture.

Again, higher rates of growth of output in industry and agriculture are not sufficient by themselves. Income generated in the process of economic growth should be sufficiently widely distributed to promote perceptible improvements in living standards all round, and the composition of the output should more closely correspond to the requirements of the masses. Industrialization so far has not led to a more even distribution of income, and the types of commodities and services made available have not catered to the needs of the poor. Appropriate industrial choices have not been made in formulating the strategies for industrialization of the low-income countries, and consequently industrialization has been oriented to satisfying the demand of certain sections of the societies living in the urban areas and

not to that of the general body of population, which is poor and which mostly lives in the rural areas. The industrialization of the poorest countries must therefore be re-examined.

Industry supports rural development

Industry supports integrated rural development in several ways, as four types of industry demonstrate. First, in almost all countries in both rural and urban areas, there are cottage or handicraft industries producing a variety of articles for rural and urban consumption and also for export. The traditional skills on which these industries are based can be further developed and upgraded. Secondly, there are manufacturing industries that are closely linked with agricultural development—industries producing fertilizers, pesticides, agricultural machinery, equipment and tools (mechanical, hand-operated and animal-drawn)—and industries concerned with maintenance of machinery and transport equipment. Some of these industries are on large- and medium-scale and, although these may be located outside the rural areas, they contribute substantially to increasing agricultural productivity by supplying inputs for rural development, which largely means agricultural development. Thirdly, there are industries based on the processing of local raw materials from agriculture and fisheries—food processing, leather and textiles; from forestry—construction and furniture. Many can be developed in rural areas as modern industries on a small scale. Lastly, other industries not included in the types already mentioned but capable of satisfying some of the basic needs of the rural population may be developed in the rural areas as part of the policy of decentralization of industrial development.

Requirements of a programme for developing industry as a component of integrated rural development

A certain geographical area is taken as the unit for integrated rural development, selected on the basis of criteria formulated in the light of the objectives of government policy on rural development. The criteria will vary from area to area depending on the needs and resources of the area, both material and human. An economic and social survey of the area is essential to obtain information on the size of the area, the composition of its population by sex and age; employment and unemployment and the main occupations; actual and potential resources for economic and social development; and infrastructural facilities. As the purpose is to prepare an industrial programme for the area, efforts must be made to identify the opportunities for developing non-agricultural and industrial activities in the light of the available resources of the area such as raw materials, the supply of labour, technical know-how, entrepreneurship, the availability of finance and the demand.

National machinery for preparing, co-ordinating and implementing rural development programmes is a prerequisite for their success; and most countries committed to such programmes have set up central, regional and local machinery for carrying them out. There must also be a national organization responsible for the industrial part of such programmes. It may be a corporation or a division of the Ministry of Industry, with the specific charge of formulating the area plans for industrial development in co-operation with the national organization that exists for

integrated rural development. Such an institution through its several departments will perform all functions relating to industrial plans for an area, such as collecting information, identifying industries suitable for development in the area, and assisting in preparing and evaluating projects.

Elements of a rural industries development programme

A broad, integrated approach should be adopted in shaping an industrial development programme for rural areas. It is not enough to set up an institution charged with, say, making money and credit more readily available to small industry. The opportunities for industrial development will be limited by such factors as lack of technical knowledge, inefficient marketing, poor design of products and lack of skill in planning and managing an industrial enterprise. In the same way, a technical advisory service or an industrial research institute by itself or a demonstration centre showing improved practices or a management training course will have a rather limited impact unless it is set up as part of a comprehensive programme. The small entrepreneurs, for example, may be impressed by a demonstration of mechanized production methods, but without access to suitable financing they may be quite unable to acquire even a modest amount of machinery. A programme for developing industries in the rural areas must consist of measures to deal with several limiting factors simultaneously.

A rural industries development programme as part of integrated rural development should, therefore, include the following elements:

The selection of an area on the basis of the desired criteria
A survey to assess the human and material resources of the area
Identification of industries suitable for incorporation in the industrial programme for the area
Project preparation and evaluation
Financial or credit support
Technical assistance
Marketing support
Industrial research and advisory services
Procurement of raw materials and equipment
The establishment of industrial estates or centres with basic facilities
Industrial training

At present, no country has endeavoured systematically to include industrial development as a component of integrated rural development. Almost every country of the ESCAP region has a programme for developing small-scale and cottage industries, but these programmes rarely form part of integrated rural development.

Several categories of industrial activity[4] suitable for development in rural areas are discussed below.

[4] This classification is based on *Rural Industrialization* (United Nations publication, Sales No. 74.IV.4).

Processing of agricultural products

Agricultural processing plants are essential, and for most of them, there are good reasons for locating them close to their sources of raw materials. Processing may include the primary processing of the output of fisheries, silviculture and agriculture in its broadest sense, covering crops, animal and poultry products. There may be simple and inexpensive operations to preserve foodstuffs against losses through vermin or insect attack or to improve their keeping qualities as well as somewhat complicated processing plants converting the raw produce into a form acceptable to the markets.

Provision of agricultural inputs

Agricultural improvements often necessitate the introduction of mechanical devices such as the substitution of steel for wooden implements and the use of irrigation equipment and tractor-drawn appliances. Village craftsmen can make simple hand tools, non-motorized transport equipment and equipment for servicing and repairing agricultural machinery. The skills of rural craftsmen may be upgraded so that the craftsmen may eventually be able to manufacture such items as ploughs, burrows and sprayers and to introduce post-harvest technology to minimize loss of agricultural produce.

Mineral extraction and the production of building materials

Where mineral resources are exploitable, mining could lead to the setting up of new enterprises, namely, the servicing and repair of mining equipment, the manufacture of certain mining supplies, such as protective clothing, small-bore hoses and gaskets, and the dressing of mining tools. Building materials such as crushed stone, bricks, floor tiles could be produced by small enterprises in rural areas more cheaply than in urban areas.

Rural consumer goods produced and services performed by traditional artisans

In all rural communities, there are some tradesmen, woodworkers or carpenters, sheet-metal workers, blacksmiths and tailors. Small-scale industries or handicrafts centring round the activities of these workers could be developed by improving designs. The demand for consumer items will increase as rural income rises as a result of greater agricultural productivity stimulated by government policies. More rural workers will thus be employed in the maintenance and repair of equipment used in rural transport, industry and homes.

Artistic handicrafts

In most countries rural skills of a high degree exist for producing articles of artistic excellence from locally available materials. Frequently, such articles are produced as a spare-time family occupation. For these articles there is an expanding domestic and export market. The designs for these products can be improved, their

qualities enhanced, and their markets, particularly export markets, promoted. Both technical and marketing assistance considerably benefits small-scale handicraft producers.

Auxiliary manufactures

Auxiliary manufactures include the production of components for eventual assembly in large, usually urban, factories. This sort of subcontracting with a guaranteed market and a feedback of technical assistance is quite practicable in developing countries that have achieved a fairly high technological level and where efficient and dependable small-scale industries exist. Such industrialization brings about an integration of operations between rural and urban areas.

Bangladesh—a case study in industrialization in relation to integrated rural development

Background

Bangladesh, the eighth largest country in terms of population (80 million in 1977) is the fourth largest of the rural countries in the world. The *per capita* income in Bangladesh is about $80.[5] About 60 per cent of its rural population lives below the minimum subsistence level, with an average *per capita* income of less than taka 400 per annum; 57 per cent of its gross domestic product is accounted for by agriculture, which involves 22.84 million persons, of whom 7.5 million are either unemployed or underemployed. Its population density per square mile is more than 1,500 against the total availability of 22 million acres of cultivable land. The average size of holding is less than 2.5 acres. Most farmers are small-scale and medium-sized farmers. The number of landless labourers is estimated to be around 30 per cent of the working population. Only a few farmers (10 per cent) produce a surplus. The majority of families (66 per cent) own 0.50-2.50 acres of land, or a total of 24 per cent of the cultivable land. Medium-scale farmers (29 per cent of the farm families) own parcels of land of 2.50-7.50 acres, or 55 per cent of total cultivable land. The remaining farm families (4 per cent), owning 24 per cent of the total cultivable land, are considered to be big farmers. The pattern of unequal distribution of land ownership has significantly contributed to the already existing acute poverty.

Rural poverty in Bangladesh may be attributed to several factors: low agricultural yield, increasing pressure of population on limited agricultural land, high rate of absolute and disguised unemployment and ineffective agencies for supporting agricultural development or promoting non-agricultural opportunities in the villages. In view of this situation, the Government of Bangladesh envisaged a massive rural development programme within the framework of the country's first five-year development plan (1973-1978). The broad objectives of government policy are: *(a)* to replace gradually the traditional and unreliable agricultural methods by modern methods capable of sustaining agricultural growth; *(b)* to increase agricultural income on which the vast majority of the population depends for livelihood; *(c)* to expand employment opportunities for the growing labour force; and *(d)* to reduce rural poverty and equalize income distribution.

To realize the above objectives, a new agricultural technology has been introduced and new government agencies have been created.

[5] One dollar = taka 15.00 approximately.

New agricultural technology

The new agricultural technology is based on the introduction of high-yielding varieties (HYV) of rice and an improved supply and servicing programme.

Although this technology was introduced in Bangladesh as early as 1966, these varieties are cultivated on only 2.6 million acres, which is about 11 per cent of the total cropped area under rice cultivation. As is well-known, the success of HYV technology depends upon the application of adequate doses of chemical fertilizers, irrigation and availability of credit. Where large farmers have more access to input facilities than the medium- and small-scale farmers, the former group is likely to apply HYV technology earlier than the other groups. A recent BIDS study[6] attributes the slow spread of HYV technology to irregular supply of inputs, inadequate extension services, lack of irrigation facilities and an inelastic supply of credit.

Regarding the input programme, which is heavily subsidized by the Government, farmers are supplied with seeds, fertilizer, insecticides, pesticides and institutional credit against production plan, and extension services through the Bangladesh Agricultural Development Corporation (BADC), Integrated Rural Development Programme (IRDP), National Co-operative Bank, some commercial banks and other agencies. The Government has planned to supply to the agrarian population during the plan period 3.9 thousand tons of fertilizer of different varieties, 79.7 thousand tons of pesticides, 100 thousand tons of seeds and 365 crores of taka of institutional credit.

Institutions for rural development

The institutions concerned most directly with agricultural and rural development are described briefly below.

Integrated Rural Development Programme

Under IRDP, the "Comilla Co-operative System" is being extended to 162 out of 410 thanas of the country.[7] Farmers are to be organized through village-based primary co-operatives and their supporting federation at the thana level. Both these grass-roots institutions provide agricultural inputs, managerial know-how and continuous service to their members.

Thana Training and Development Centre

The Thana Training and Development Centre (TTDC) houses all the thana-level offices concerned with development and provides extension and training services to farmers.

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[6] M. Asaduzzaman, *The High Yielding Variety Programme and the First Five-Year Plan: Some Comments* (Dacca, Bangladesh Institute of Development Studies (BIDS), 1974).

[7] A number of villages constitute a "union" and a number of unions constitute a "thana".

Thana Irrigation Programme

Through the Thana Irrigation Programme, farmers have been organized for joint use of irrigation equipment such as pumps and tube-wells. Groups organized in this way have subsequently been converted into co-operative societies.

Rural Works Programme and Food for Works Programme

The Rural Works Programme and the Food for Works Programme have been designed to build up physical infrastructure and to provide additional employment opportunities for the landless and marginal farmers in the slack season.

Multipurpose co-operatives

Apart from the IRDP co-operatives and the institutions discussed above, over 4,000 multipurpose co-operative socieities also exist whose primary function has been to distribute short-term credit to the farmers supplied by the National Co-operative Bank and its affiliated 62 central banks.

Problems untouched by the rural development programme

The present rural development programme, however broad it may be in its perspective, has left some of the vital issues unattended. Some of the more important of these and ones that suggest the need for reorientation and readjustment in future planning strategies are discussed below.

Problems of the marginal and landless farmers

Most of the farmers in Bangladesh (about 65 per cent) are marginal farmers, having total land holdings of 0.5-2.5 acres. Such small holdings make modernized cultivation difficult and farming unprofitable. There also exists a huge number of landless farm labourers, a number that has been growing in recent years. Neither IRDP nor any other existing rural institution has any built-in mechanism to cater to the needs of the marginal farmers and landless labourers. Both these groups have little or no access to HYV technology because of lack of capital for procuring seeds, fertilizers and implements. Any programme attacking rural poverty should be directed first of all at assisting this group. A special institutional arrangement should be made to include them under IRDP, or a separate programme should be launched within a redefined framework of IRDP.

Other issues

Of the many other issues involved in the rural development of Bangladesh, land reform should be mentioned first, since it occupies a central place in any rural development strategy designed to reduce rural poverty. Yet no serious effort to achieve land reform that would notably affect production has been made in

Bangladesh. A narrowly conceived land reform was introduced in 1972; it fixed a maximum ceiling of land holding at 33 acres per family and exempted farm holdings up to 8.3 acres from the land tax. Land redistribution with a lower ceiling depends on a political decision and requires adequate machinery for implementation.

Price policy is a second issue. Farmers' income depends primarily on the prices at which they sell their crops—rice, jute, sugar-cane, tobacco and vegetables. The maintenance of remunerative prices, particularly for the major cash crops, provides the most powerful stimulus to expand production. A pricing policy should be adopted to check fluctuation of prices and to ensure a minimum acceptable price level for various agricultural commodities.

Thirdly, the increased production of food grains and other agricultural crops means that sufficient storage and marketing facilities for them must be provided. An effective distribution programme of agricultural inputs such as seeds, fertilizers and insecticides also calls for a network of storage and warehousing facilities throughout the country. The procurement of food grains for price stabilization and emergency relief measures in case of drought, flood or famine also requires for its success a network of storage and godowns throughout Bangladesh. Often, farmers sell their products immediately after harvesting when prices are low because of lack of storage and marketing facilities.

Fourthly, the lack of co-ordination among the various ministeries, departments and agencies at all levels is a serious problem, particularly pronounced at the thana level, which, under the present arrangement, forms the basic unit of developmental administration. TTDC was established to bring the various agencies concerned with development activities at the thana level under a single roof. In practice, however, no effective co-ordination has been achieved. The government functionaries at the local level owe their allegiance to their respective departments. Further, local government employees are unwilling to transfer the responsibility of management to the farmers and their organizations. What is necessary is to evolve a system to ensure accountability of field-level functionaries to the local organizations; the problem of co-ordination and integration has to be successfully tackled. The necessary strength of local bodies, however, has yet to emerge.

Fifthly, Bangladesh still practises centralized planning. Some centralization in formulating and implementing plans is desirable, but local planning must be encouraged. In this case, the local administrative structure needs more authority to design and execute plans. Local bodies should have sufficient planning methodology at their command. "Bottom-up" planning is likely to result in more participation from the people.

Sixthly, Bangladesh has a vast reservoir of underemployed and unemployed manpower, but it suffers from an acute shortage of skilled and semi-skilled labour. About one half of the women of Bangladesh are of working age, but they are not employed in productive work. Another underutilized population group is youth. Through appropriate training and education a large proportion of these groups could be employed in various types of non-farm vocations.

Population policy

The Government has accorded a very high priority to population control, which is regarded as the number one problem of the country. To highlight the gravity of the

problem, a National Population Council with the President as chairman has been formed. Family planning is an accepted policy of the Government.

In the past, family planning was administered in isolation from development programmes, but the emphasis has recently shifted. Now various government ministeries (agriculture, education, information, labour and social welfare) are involved in family planning together with the Ministry of Health and Family Planning. Development institutions such as co-operatives and rural workers' clubs have assumed responsibilities for educating and motivating persons to adopt family planning. Rural health infrastructure is being improved through the establishment of the Thana Health Centre to provide supporting services for family planning. The system of providing services is also receiving attention from both government and non-government organizations so that the rural population has easy access to such services. Thus there is some evidence that population policy is being integrated with rural development. The result is bound to be slow because of the inadequacy of the measures taken, but popular awareness of the problem does exist.

Machinery for rural development planning

In Bangladesh, the following ministeries and agencies under their supervision are entrusted with planning for rural development:

Ministry of Agriculture

- Directorate of Agriculture
- Directorate of Plant Protection
- Bangladesh Agricultural Development Corporation
- Bangladesh Agricultural Research Council
- Bangladesh Rice Research Institute

Ministry of Local Government and Rural Development (LGRD) and Co-operatives

- Directorate of Co-operatives
- Integrated Rural Development Programme (IRDP)
- Bangladesh Academy for Rural Development, Comilla
- Rural Development Academy, Bogra
- Department of Public Health Engineering

Ministry of Forests, Fisheries and Livestock

- Directorate of Livestock
- Directorate of Fisheries
- Directorate of Forests
- Forest Industries Development Corporation
- Fisheries Development Corporation

Ministry of Health, Population Control and Family Planning

- Directorate of Health
- Directorate of Population Control and Family Planning

Ministry of Power, Flood Control and Water Resources

- Power Development Board
- Water Development Board

Ministry of Labour and Social Welfare

Directorate of Social Welfare
Directorate of Labour

Each ministry (or its directorates and autonomous bodies under its administrative control) prepares development projects for one year out of five, and then these projects are submitted to the Planning Commission for scrutiny and consolidation and subsequently to the National Executive Council, or its Executive Committee (National Executive Committee–NEC) as the case may be, for final approval. After approval, the scheme is implemented by the administrative bodies of the ministry concerned at different levels. At times, some of the projects like IRDP, Thana Irrigation Programme (TIP) and Food For Works require active participation and support from more than one ministry or agency. If so, a built-in mechanism is provided in the scheme itself. In addition, there are standing committees at national, district and thana levels to co-ordinate multiagency projects. In any case, responsibility given to any department or agency according to the project concerned becomes obligatory after its approval by NEC (interministerial and agency linkage is given in the annex).

If the co-ordination among agencies is found to be inadequate when the project is being implemented, the Planning Commission or the Project Implementation Bureau (PIB) endeavours to overcome the difficulties. The newly constituted Rural Development Council (RDC), with the President of the country as its chairman now acts as the central co-ordinating body for all development activities in the rural areas. For each project, the responsibility of each government agency is clearly spelled out. After a project has been approved, it is included in the annual development plan (ADP) and the five-year plan, and necessary funds (both for capital and operational expenditure) are placed with the executing agency or agencies concerned. Each agency has its own unit for evaluating and monitoring projects. In addition, the Planning Commission and the Project Implementation Bureau may appoint an evaluation committee when necessary.

Up to now the processes by which planning decisions are taken mostly at the national level have been discussed. In almost all the projects, details are left to be worked out at the thana and even, at times, at union and village levels. For example, in the Thana Irrigation Programme and the Food for Works Programme, national and district targets are fixed at the national level, but inter-thana and intra-thana targets are prepared at the thana and district levels with the active participation of the union parishad, which is the lowest local government unit. In addition, there are other local government bodies, namely, district councils and thana parishads. However, these bodies are unrepresentative and they have little power, a situation that should be corrected, to make them an effective instrument of co-ordination and to ensure popular participation in the development process. Local government bodies with the necessary power can successfully solve many a problem hampering development projects locally. Recently the Government has set-up several development boards (Rajshahi Development Board and Chittagong Hill Tracts Development Board) to pay particular attention to less developed areas.

The basic approach to planning for rural development has been to combine sectoral planning with territorial considerations. Emphasis is placed on the division of labour in planning and on the adoption of new technologies in agronomy, irrigation, livestock and fisheries. New agencies have been created with specialized

responsibilities. An increase in agricultural production and the creation of new jobs to reduce the rate of rural unemployment in the teeth of projected population growth have been laid down as the major objectives of rural and agricultural development. For the attainment of these objectives, the ministries concerned have included about 200 projects in the five-year plan. The projects frequently suffer from overlapping, confusion and waste. The projects are prepared by the agencies concerned and unless constrained by natural factors are spread over regions.

The area development programme has been receiving due attention recently on several grounds. First, it is convenient for exploiting local potentialities with the best combination of capital, labour and other factors of production. Secondly, the concept of local participation can be more easily translated into action within a homogeneous territorial unit, and thus the complexities arising from diversities of occupational, cultural and other factors that projects spread over several geographic regions face can be avoided. Lastly, area development provides a good mechanism for co-ordination.

IRDP is a striking departure from the traditional sectoral planning approach to development. In this programme, major reliance is placed on the development of farmers' organizations at the grass-roots level with their affiliated federations at the thana level, the thana being considered a viable unit for administering rural development. Though integration is a sophisticated concept, co-ordination of sectoral services at the thana and district levels so that they supplement each other and avoid overlapping and waste is considered the real test of success of development efforts undertaken at present. A rural development project covering a total population of two million in seven thanas of two districts has been launched. It involves some integration of agricultural credit, irrigation and extension services under the umbrella of a two-tier structure. A few other area development projects are also being prepared covering a population of about seven million in other areas. Besides these comprehensive area development projects, IRDP is working out other projects with limited terms of reference. These are based on more intimate linkage among a limited number of factors such as credit, irrigation, agricultural extension and supplies.

The present status of rural programmes is summarized briefly below.

The Ministry of Agriculture has agricultural extension officers at the union, thana and district levels. Most of these officers at the thana and union levels are poorly trained in agricultural science and extension methods. At the village level a union agricultural assistant operates in a large area. His performance has been very poor. The present extension service cannot meet the demands of the agricultural development programme envisaged in the first five-year plan.

A national co-operative credit bank with 62 central banks spread all over the country and, at the village level, 4,000 union multipurpose co-operative societies and about 25,000 agricultural co-operative societies extend short-term farm credit. The effectiveness of this system has been very limited; only a small fraction of the credit needs of the farmers is met by the co-operatives.

The former local government bodies were disbanded after independence. A new local government system is being set up that will start functioning shortly. TTDC is a key institution for integrating rural development activities of different agencies and training local leaders.

IRDP has been expanded to new areas and consolidated in existing areas. About 162 Thana Central Co-operative Federations and 18,000 village co-operatives are in operation. The village co-operatives have not been able to attract many of the small

farmers, share-croppers and landless cultivators. In many places the co-operatives are dominated and controlled by the well-to-do and influential land-owners, money-lenders and traders. The Thana Central Co-operative Associations (TCCAs) have yet to show signs of self-reliance.

The procurement and distribution of modern agricultural inputs (irrigation pumps, HYV seeds, fertilizer) is the responsibility of the Agriculture Development Corporation (BADC). The inputs are distributed through a system of warehouses and thana godowns operated by BADC and co-operative societies, irrigation groups and private dealers in the villages. This system will have to be considerably improved to ensure rapid and smooth flow of inputs when they are needed.

Marketing of agricultural produce is now handled by private traders through the market centres in the rural areas. The conditions of the rural markets and transportation are very poor. However, the Thana Central Co-operative Associations have now started marketing agricultural produce on a limited scale.

Small-scale and cottage industries

The Government has accorded a high priority to the IRDP. The whole emphasis of the programme has, however, been on agricultural development. Little or no emphasis has in practice been placed on industry as a component of the programme, although the role of industry in integrated rural development is officially recognized as important. Neither the Ministry of Industry nor any of its agencies directly plays any part in the integrated rural development programme. Bangladesh, like most countries of the ESCAP region, has, however, a programme for developing small-scale and cottage industries, but it is not integrated with the rural development programme, as it should be to have the greatest impact.

Some of the reasons for stimulating the growth of the small-scale sector in Bangladesh are as follows:

(a) Bangladesh lacks know-how and workers skilled in technology. Small-scale and cottage industries do not require a high level of technology;

(b) Small-scale and cottage industries are labour-intensive and do not require a large amount of capital. The energy of the unemployed and underemployed should be used for productive purposes in an economy in which capital is scarce;

(c) Small-scale industrial projects can be undertaken in a short period and hence can increase production in the short run;

(d) Bangladesh is rich in certain agriculture, forest and extractive resources; hence small-scale and cottage industries can be based on the processing of local materials;

(e) It will be possible to save and earn foreign exchange by exporting goods processed from local resources;

(f) Small industrial enterprises, whether modern or traditional, are the training ground for local entrepreneurs and decision makers. From small industrial enterprises industrial knowledge and skill can spread into other enterprises;

(g) By creating opportunities for the small businessman small industrial enterprises can help bring about a more suitable distribution of income;

(h) The growth of small-scale and cottage industries in Bangladesh will help to create economic stability in society by diffusing prosperity and by checking the expansion of monopolies;

(i) Above all, the development of small-scale and cottage industries will create jobs in the rural areas in a country where unemployment and underemployment are remarkably high. This will tend to reduce the exodus of workers from the rural to the urban areas in search of jobs. Some put the extent of unemployment at 30-40 per cent of the total working population. Though exact figures are not available, the number of unemployed or underemployed in the rural areas of the country is estimated at around 7.3 million. According to a study conducted by the Planning Commission, the number of educated unemployed alone is about 478,000;[8]

(j) The development of small-scale and cottage industries will make possible a transfer of manufacturing activities from the congested metropolitan to the non-metropolitan and rural areas. Dispersal of manufacturing is an important element of the industrial policy of the Government.

Rural and cottage industries in Bangladesh have a long history. The reasons for their development are as follows:

(a) Patronage from kings, landlords and others of the ruling class led to the production of muslin and other textiles;

(b) The climate and social conditions favoured the development of agriculture and silk industries in the north and the development of the salt industry in the coastal belt;

(c) The concentration of groups of artisans in certain areas also led to the specialization in sericulture and silk industries in the north and the development of a particular local skill, for example, hand-loom weaving in the Pabna, Shajadpur, Tangail, Narayanganj, Narshingdi, Ramchandrapur, Shovarampur areas; pottery in Rayar Bazar and Bijoynagar areas; bell and brassware industries at Islampur in Mymansingh, Shantosh in Tangail and Dhamrai in Dacca;

(d) Rural industries such as paddy husking, grain milling, smithy, jewellery making, oil grinding, saw milling grew in order to meet local requirements;

(e) Industries also thrived on locally available raw materials—cane and bamboo products at Sylhat, cigar and cheroot at Rangpur and Cox's Bazar, coir products at Swarupkati, pati and grass mats at Sylhat and Khulna, jute products like twine rope and sikka at Dacca and Mymansingh.

The decadent condition of some of these traditional industries has aggravated unemployment apart from disrupting the stable social order in the villages. According to the Ministry of Industries, more than 400,000 rural and cottage industrial establishments employ about 1.2 million workers in rural areas.[9] This industrial sector should therefore be reorganized and revitalized, and new types of industries and activities promoted in an effort to diversify rural occupations.

[8] Paper submitted by the Director-General, IRDP, Bangladesh.

[9] Letter dated 29 May 1976 to the Division of Industry, Housing and Technology, ESCAP, Bangkok.

The Bangladesh Small and Cottage Industries Corporation

The Bangladesh Small Industries Corporation was established in 1957 to promote small industries as well as cottage and rural industries. In 1971, a separate corporation, the Bangladesh Cottage Industries Corporation, was created. The two corporations have now been merged to create a single corporation, known as the Bangladesh Small and Cottage Industries Corporation. It provides the principal institutional support for the development of rural and cottage industries in the country.

The Corporation has a design centre for developing industrial designs and prototypes through market research and study of consumer tastes. Substantial work has been done in the following crafts:

Hand-loom weaving and printing
Pottery
Ceramic products
Doll making
Cane and bamboo works
Woodcarving
Coir products
Shell and horn products
Leather craft
Jute handicrafts
Jewellery (gold and silver)

A special unit, the Rural Industrial Service, was created to provide plant counselling and training for local artisans in various crafts. The Rural Industrial Service has extended its services to more than 5,000 units and has provided training to about 3,000 persons in the following fields:

Textile weaving
Screen printing
Tailoring–sewing and knitting
House wiring
Light engineering
Pottery making
Management training
Wood carving
Leather goods

The Corporation has established common facility centres that provide essential services to hand-loom weavers (dyeing, sized beams, calendering, supplying of raw materials) and to craftsmen engaged in cane, bamboo and coir production. It has established training and research institutes for sericulture, nurseries, pilot units for salt and extension units.

To organize the marketing of handicrafts and other products, the corporation established sales and display centres in Dacca, Chittagong, Rajshahi and Rangamati and also a Hand-loom Goods Export Corporation as its subsidiary. To strengthen marketing both at home and abroad, the Bangladesh Handicraft Co-operatives Federation was set up in 1975.

The efforts made by the Corporation have, however, been only a partial success. Efforts have not been sustained owing to lack of resources and properly trained personnel. Credit and marketing facilities for rural industry products are inadequate. What is needed for rural industrialization is an intensified, concerted and integrated effort for providing package services to both existing and potential industries and monitoring of plans and programmes accordingly.

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Rural industrialization in Costa Rica— Case study of the Co-operative Union URCOZON in the San Carlos region

*Roxana Escoto**

This paper describes the policies of the Government of Costa Rica, initiated in the 1970s, to industrialize rural areas so as to slow or prevent an exodus of the peasantry to the towns.

Industrialization in relation to integrated rural development in Costa Rica

Rural industrialization policy

Until the end of the 1950s, the growth of the economy of Costa Rica was based on agriculture and an expansion of the country's exports. The production of coffee and bananas generated much of the employment and income in the country and provided the foreign exchange needed for importing consumer products. This development is usually known as the agro-exporter model.

Until the 1960s, this agro-exporter model could operate efficiently because it was still possible to expand the agricultural frontier by occupying and exploiting new land. The economy was thus able to maintain an acceptable rate of economic expansion despite the periodic crises on the international coffee markets and a reasonable rate of generation of new jobs. Nevertheless, it was unable to generate sufficient jobs to absorb the unemployed and simultaneously compensate for the rapid growth of the labour force. As a result, the level of unemployment in the country remained at about 7 per cent in addition to underemployment in important sectors of the population.

The agricultural structure of this model involved a high rate of permanent underemployment, together with a concentration of production and underutilization of productive factors that the model did not activate. Moreover, the living conditions of the peasantry were poor. There was a considerable imbalance between the countryside and the towns as far as income, health, education, job security and other basic services were concerned.

At the end of the 1960s, and during the 1970s, the possibility of rural development based on agricultural growth became limited. A small farm requires more labour per hectare than a large farm, but the growth of new activities such as sugar-cane cultivation and especially cattle raising helped to consolidate the position of large agricultural holdings and to reduce agriculture's capacity to absorb labour. And all this was accompanied by increased mechanization on the larger farms. In the period 1950-1963, agriculture absorbed over 35 per cent of the total increase in employment; in the period 1963-1973 the figure fell to less than 11 per cent; at present it is below 9 per cent (see tables 1 and 2). It should be noted that the agricultural sector's loss of capacity to absorb labour was accompanied by a considerable increase in the area of production and in mechanization.

*Comptroller, Coopesa R. L., Labour Co-operatives, San José, Costa Rica.

Table 1. Rural and urban distribution of population, labour force and employment, 1950-1976

Population, labour force and employment	*Absolute*				*Relative (percentage)*			
	1950	*1963*	*1973*	*1976*	*1950*	*1963*	*1973*	*1976*
Total population	859 000	1 378 705	1 879 252	2 009 322	100.0	100.0	100.0	100.0
Urban	216 541	540 381	763 505	863 281	25.2	38.2	40.6	43.0
Rural	642 459	838 324	1 115 747	1 146 041	74.8	60.8	59.4	57.0
Labour force	291 819	411 751	588 026	657 709	100.0	100.0	100.0	100.0
Urban	105 638	152 257	255 417	301 208	36.2	37.0	43.4	45.8
Rural	186 181	259 494	332 609	356 501	63.8	63.0	56.6	54.2
Employment	279 953	383 147	544 776	616 788	100.0	100.0	100.0	100.0
Urban	98 823	139 797	238 879	280 828	35.2	36.5	43.8	45.5
Rural	181 120	243 350	305 897	335 960	64.7	63.5	56.2	54.5

Source: Population censuses corrected and adjusted for June of each year; and Survey of Households, Employment and Unemployment.

Table 2. Distribution and sectoral structure of employment, 1950-1976

Sector	Absolute				Relative (percentage)			
	1950	*1963*	*1973*	*1976*	*1950*	*1963*	*1973*	*1976*
Agriculture	153 134	190 424	208 108	214 539	54.7	49.7	38.2	34.8
Industry[a]	31 635	44 828	70 130	90 294	11.3	11.7	12.9	14.6
Construction	12 038	21 073	37 583	40 242	4.3	5.5	6.9	6.5
Basic services[b]	11 198	18 390	29 895	34 349	4.0	4.8	5.5	5.6
Trade[c]	22 116	37 932	80 093	100 804	7.9	9.9	12.2	16.3
Personal services[d]	49 832	70 500	118 967	136 560	17.8	18.4	24.3	22.1
Total	279 953	383 147	544 776	616 788	100.0	100.0	100.0	100.0

Source: Population censuses, corrected and adjusted, 1950, 1963, 1973; Survey of Households, 1976.

[a] Including manufacturing and mining industry.

[b] Including electricity, gas, water, transport, communications and warehousing.

[c] Including wholesale and retail trade and banks.

[d] Including remaining sectors and unspecified activities.

There thus began an exodus from the countryside to the towns that has become more marked in recent years: the labour force of the metropolitan area of San José grew at an average rate of 5.3 per cent a year in the period 1963-1973 (see table 3).

Table 3. Metropolitan area: growth of population and labour force, 1963-1976

Area	Number of persons			Annual growth rate (percentage)	
	1963	*1973*	*1976*	*1963/ 1973*	*1973/ 1976*
Metropolitan area[a]					
Population	320 431	496 147	549 232	4.5	3.4
Labour force	192 987	172 036	196 283	5.3	4.5
Total					
Population	1 378 705	1 879 252	2 009 322	3.1	2.2
Labour force	411 751	588 026	657 705	3.7	3.8

Source: Population censuses 1963 and 1973; Survey of Households 1976.
[a]Census data are neither corrected nor adjusted.

The labour policy for the rural sector is considered in the national development plan for 1974-1978, which set the target of creating 26,000 new jobs a year (see table 4) mainly by:

(a) Encouraging the production of staple grains (which contributes to agricultural production and helps to meet the most immediate needs of the population);

(b) Rationalizing the agrarian structure to enable more farmers to own their land and to create co-operative forms of production that provide greater opportunities for stable employment for the peasantry and ensure a more equitable distribution of the fruits of agricultural labour;

(c) Promoting manufacturing activities in rural areas in connection with the social and communal development of those areas, with the main stress on agro-industry, small and cottage industries and incentives for co-operative forms of production;

(d) Providing occupational training, linked with the other measures created mentioned above.

The promotion of industries in the rural areas will generate jobs directly and indirectly. The potential of rural natural and human resources can thus be realized, which in turn will not only have a dynamic effect on the rural areas, but will also lead to a greater national integration as the rural productive potential is brought into the economy of the country. Consequently, rural industries require deliberate action by the State to promote them. Legislation is needed that defines objectives, specifies the incentives to be given and rationally organizes resources and public services for the promotion of enterprises producing goods and services in rural areas. It was to

Table 4. Employment targets of the national development plan for 1973-1978 and employment generated between 1973 and 1976

Sector	Planned targets, 1973-1978			Employment generated, 1973-1976		
	Absolute	Relative (percentage)	Annual growth rate (percentage)	Absolute	Relative (percentage)	Annual growth rate (percentage)
Agriculture	22 961	17.8	2.1	6 431	8.9	1.0
Industry[a]	22 272	17.3	5.9	20 164	23.0	8.8
Construction	17 615	13.7	8.1	2 659	3.7	2.3
Trade[b]	27 525	21.4	6.4	20 711	28.8	8.0
Basic services[c]	6 874	5.4	4.6	4 454	6.2	4.7
Personal services[d]	31 444	24.4	3.9	17 593	24.4	4.7
	128 691	100.0	4.2	72 012	100.0	4.2

Source: National development plan for 1973-1978; population census for 1973 (adjusted); Survey of Households for 1976.

[a] Including manufacturing and mining industry.

[b] Including wholesale and retail trade and banks.

[c] Including electricity, gas, water, transport, communications and warehousing.

[d] Including remaining sectors and unspecified activities.

this end that the Encouragement of Rural Industry Bill was submitted to the Legislative Assembly in April 1976. The goal of the bill is to solve problems that have arisen from the recent development of the country: increasing unemployment and rural poverty and their consequences—problems whose solution cannot be postponed.

Development of co-operatives in Costa Rica

Little is known about the origin of the first co-operatives in Costa Rica, but they may have been organized by foreign residents in the country and by Costa Rican nationals who were acquainted with the advantages of co-operatives from their travels abroad.

In 1923, the *Sociedad Cooperative Constructora Germinal* (Germinal Construction Co-operative Society) was founded. In 1935, the *Sociedad Cooperative Tipográfica* (Typographical Co-operative Society) was formed. Four years later, the first savings and consumer co-operative was formed by the staff of the Bank of Costa Rica, and still others were formed. All these co-operatives, formed by persons without experience and with insufficient capital were bound to disappear. None the less these first experiments laid the foundations of the Costa Rican co-operative movement.

On 26 August 1943, the Labour Code was issued, chapter III of which contained the first legislation concerning co-operatives in Costa Rica. In 1947, Law No. 861 was passed establishing the Section for the Encouragement of Agricultural and Industrial Co-operatives of the National Bank of Costa Rica. The Section was the first national agency devoted to furthering co-operatives in Costa Rica. It

concentrated on agriculture and agro-industry, but also set out to form other types of co-operative. In 1953, the Section was converted into the Department for the Encouragement of Co-operatives of the National Bank of Costa Rica and given greater resources and projects to encourage all types of co-operative in the country.

In 1955, the Office of Unions and Co-operatives of the Ministry of Labour and Social Security, currently known as the Department of Social Organizations of the Ministry of Labour and Social Security, was created. The Office was made responsible for granting legal personality to co-operatives, interpreting legislation regarding those associations, supervising co-operatives and requesting their dissolution when necessary. The first agency for co-operative integration, founded in 1962, was the Federation of Coffee Growers' Co-operatives.

Because of the growing importance of co-operatives, Law No. 4179 of 22 August 1968 was issued. It established a levy of 10 per cent of the earnings of the banks of the national banking system (in Costa Rica the entire banking system is a State one) to boost the income of the Department of Co-operatives of the National Bank of Costa Rica.

In the 1970s, changes in the official agencies supporting the co-operative movement took place. Law No. 5185 of 22 March 1973 set up the National Institute for the Furtherance of Co-operatives, which assumed the functions of the Department mentioned above and was given responsibility for supervising co-operatives nationally and for interpreting legal matters concerning co-operatives. These functions had been given by an earlier law to the Department of Social Organization of the Ministry of Labour and Social Security.

Table 5 shows the co-operatives existing in Costa Rica by category and province as of 30 September 1977.

Fifty per cent of the country's production of coffee, one of its two chief products, is processed in coffee estates organized as co-operatives. The Federation of Coffee Growers' Co-operatives is a national organization that comprises all these estates. Its chief function is to market the coffee and to obtain better prices for its co-operative members.

For processing and marketing sugar, 60 per cent of the cane-sugar plantations of the country are brought together in a co-operative called the *Cooperativa Agricola e Industrial Victoria* (Victoria Agricultural and Industrial Co-operative). The co-operative has a sugar factory and distributes locally highly refined granulated sugar.

Cattle raising has developed in the last 20 years, and two large cattle raising co-operatives exist. One, the Milk Producers' Co-operative, consists of 60 per cent of the milk producers of the country. Its principal objective is to process milk and manufacture a wide variety of milk products, thereby obtaining a better price for milk and favouring the producer. The other is the *Cooperativa Matadero Nacional de Montecillo* (National Slaughtering Co-operative of Montecillo), which purchases cattle on the hoof, slaughters them and packs them suitably for foreign and local markets. By-products are also obtained that serve as raw material for other industries. The Montecillo Co-operative operates tanneries for leather for footwear, wallets and the like and sausage plants.

The co-operatives mentioned, particularly those of the coffee growers and sugar producers, are located in rural areas. Nevertheless, their seasonal production means that workers are employed only at certain times of the year, and the exodus of the peasantry to the towns continues. The milk-processing plant and the *abattoir* are in urban centres; their workers live in the town centres.

Table 5. Co-operatives by category and province (30 September 1977)

Province	*Savings and credit*	*Agricultural*	*Consumer*	*Housing*	*Transport*	*Electrification*	*Industrial*	*Multiple*	*Cottage industry*	*Recreation*	*Services*	*Federations/ Unions*	*Total*
San José	87	07	02	05	02	01	07	26	—	02	05	06	150
Alajuela	24	19	02	—	02	03	04	04	—	01	—	01	60
Cartaco	15	11	02	01	—	01	—	02	—	—	—	02	34
Guanacaste	11	11	—	—	—	01	01	05	01	—	—	—	30
Pantarenas	05	11	02	—	—	—	04	06	—	01	—	01	30
Limón	08	06	02	01	—	—	01	04	—	—	—	—	22
Heredia	11	05	01	—	—	—	—	04	—	—	—	—	21
Total	161	70	11	07	04	06	17	51	01	04	05	10	347
Percentage	46.40	20.17	3.17	2.02	1.15	1.72	4.90	14.70	0.28	1.15	1.44	2.90	100

Incentives to promote industry in rural areas

Law No. 5185 on Co-operative Associations

Article 6 of the Law on Co-operative Associations stipulates that co-operatives shall enjoy the following privileges:

(a) Exemption from the payment of territorial taxes for 10 years from the date of legal registration;

(b) Exemption from all national or municipal taxes and levies on the articles of association, registration, amendment of statutes or other legal requirements for their operation;

(c) Priority on land, sea and air transport by State enterprises or by private operators who receive an official subsidy, and a reduction of 10 per cent on freight charges on goods of theirs that are transported by those enterprises;

(d) A reduction of 50 per cent of the duties on stamped paper, stamps, and registration fees on documents issued by them in favour of third parties or issued by third parties in their favour, and on all legal operations in which they are involved actively or passively;

(e) Exemption from the payment of customs duty on tools, raw materials, machinery, spares, working equipment and utensils, medicines, herbicides, insecticides, fertilizers, sacks and other packing materials, seeds, and animals imported for agriculture, cattle raising, industry, cottage industries or construction, provided that material of acceptable quality is not produced in the country or national production is insufficient to supply the market in the opinion of the Ministry of Economy, Industry and Commerce;

(f) Exemption from the payment of 50 per cent of the customs duties on food and medicinal articles imported by the consumer co-operatives, provided that they are not produced in the country or national production is insufficient to meet demand;

(g) The right to contract preferentially with the State, on equal conditions, for the sale, acquisition or distribution of products or the provision of services that may be required by the State or any of its institutions;

(h) The right to administer the services of the distribution of energy, factories and workshops that are part of the heritage of the State;

(i) Priority in acquiring or leasing land that is the property of the State or its institutions over any legal or natural person, provided always that the co-operative has suitable capacity to develop the plan of operations in the opinion of the National Institute for the Furtherance of Co-operatives;

(j) The right to obtain from the National Insurance Institute, at cost, all the types of policy offered by the Institute, exclusively, however, through the unions, federations or national confederation of co-operatives authorized by the Law;

(k) The right to obtain from the institutions responsible for the production or distribution of electricity preferential tariffs as regards the purchase price of electricity, particularly for co-operatives that operate in the rural areas of the country.

For the purposes of calculating the income tax of members of co-operatives, account shall be taken of only 50 per cent of the income from surpluses and interest on their certificates of payment of investment shares obtained in the co-operative.

Bill on the Encouragement of Rural Industry

The Bill on the Encouragement of Rural Industry provides:

(a) Total exemption from payment of duties and taxes on the importation of machinery, equipment, spares and accessories necessary for the functioning of the enterprise;

(b) Free importation of raw materials, semi-finished products, intermediates, bottles, packaging, samples and patterns;

(c) Exemption of up to 100 per cent of the tax on the liquid and fixed assets of the enterprise for 10 years;

(d) Exemption of up to 100 per cent of the payment of income tax for 10 years.

Development of the programme for rural industry

The URCOZON project, which is described in the next section is part of the programme formulated by the Government of Costa Rica for the development of rural industry, particularly agro-industry. The Law on Co-operatives, the Bill on the Encouragement of Rural Industry (under study in the Legislative Assembly), the Municipal Code, and the Law on the Creation of the Municipal Development and Advisory Institute are instruments that give new impetus to the formation and growth of co-operatives enterprises, and this will permit the active participation of increasingly wide sectors of the country in the furtherance of regional and national development.

A practical case of a co-operative enterprise: rural industry—URCOZON

The case under study is the Regional Union of Co-operatives of the Northern Zone (URCOZON), constituted in June 1972.

The primary objective of the project is to develop the area of San Carlos agriculturally and industrially and to substitute other crops for the traditional crops that present permanent problems owing to poor adjustment to the soil or the climate, or because they are subject to frequent market fluctuations. After preliminary investigations, it was decided to give preference to the cultivation and industrial processing of cassava *(Manihot esculenta).* The project was supported by the Ministry of Agriculture, the National Institute of Co-operatives (INFOCOOP) and the Federal Republic of Germany, which offered to donate and install the mechanical equipment required by the industry.

Creation of the co-operative

In February 1974, the feasibility study on the installation of a cassava chips factory was submitted. The study was prepared by a commission consisting of officials of the Ministry of Agriculture and Cattle Raising, the National Institute for the Furtherance of Co-operatives, the technical mission sent by the Government of the Federal Republic of Germany, the National Planning Office, and the Centre for the Promotion of Exports and Investment.

The Government of the Federal Republic of Germany donated about DM 1.4 million worth of machinery and equipment for the plant. Experts in cassava production who also had experience in domestic and international marketing came to Costa Rica and took charge of training the general manager. Other technicians were responsible for the construction of the industry and the training of the local labour force to operate the machinery.

The National Institute for the Furtherance of Co-operatives gave URCOZON a credit of ₡4.7 million:[1] ₡1.9 million for the construction work and installations, and ₡2.8 million as working capital, for a ten-year period with amortization payments every six months and a two-year period of grace.

Besides these two institutions and the international organizations, URCOZON was made up of 12 co-operatives from the area. They were:

The Savings and Credit Co-operative of the Community of La Palmera

The Savings and Credit Co-operative of the Community of Pital

The Savings and Credit Co-operative of the Community of Aguas Zarcas

The Savings and Credit Co-operative of the Community of Venecia

The Agricultural and Industrial Co-operative of the Community of San Carlos

The Agricultural and Industrial Co-operative, La Trinidad

The Savings and Credit Assistance Co-operative of Florencia de San Carlos

The Multiple Service Agricultural Co-operative of La Fortuna de San Carlos

The Rural Electrification Co-operative of San Carlos

The Savings and Credit Assistance Co-operative of the Community of Ciudad Quesada

The Multiple Service Agricultural Co-operative of La Isabel.

Each contributed the sum of ₡10,000 to URCOZON.

The objectives of URCOZON as set out in its statutes are:

(a) To market directly the produce of its members;

(b) To develop the infrastructure needed for handling and processing the produce of its members;

(c) To arrange the financing for marketing;

(d) To collaborate with agricultural, animal husbandry, industrial or communal institutions to improve techniques of cultivation, production, marketing, industrialization, crop diversification etc.

[1] The monetary unit in Costa Rica is the colón (₡). The conversion rate used in this study is $1 = ₡8.60.

Economic potential and technical viability of programme of URCOZON

Technical viability of the programme

The northern zone of Costa Rica (San Carlos) has a tropical climate. Annual rainfall is 3,500 to 4,000 mm, distributed throughout the year. The soil is loose, well-drained and suitable for growing cassava.

Only two of the varieties tried stand out: Valencia and Mangii. The latter offers special advantages, since, among its other qualities, it tolerates a certain fungoid disease (Sarna).

Cassava can be sown at any time of the year in San Carlos, but it is preferable to sow from March to October.

The vegetative period of the crop varies from 10 to 14 months. The planting area in this zone has a flat topography with a slight slope, suitable for mechanization. It also has a good network of roads, rural electrification, and in general a suitable structure of land holding.

Estimated production is between 300 and 500 quintals per block[2] according to the degree of mechanization of cultivation (10,000 plants to a block). In 1974, according to a study by the Ministry of Agriculture and Cattle Raising, 2,000 blocks had been sown, representing 3,000 cassava producers, which shows that sowing areas were small to medium-sized.

The industry was located in Florencia. The site had access to Ciudad Quesada, capital of San Carlos, and to San José in the central plateau. It also had passable roads to the production areas under the influence of the co-operatives. It was to be connected to the highway under study that will link Florencia to Los Chiles and to the road linking Florencia with the Inter-American Highway via Naranjo.

Economic potential of the programme

The original feasibility study was based on the European market for cassava chips. It was estimated that demand would increase by between 80 and 100 per cent during the 1970s, or from 1.1-1.4 million tons to 2.5-2.8 million tons, because of the considerable rise in the prices of maize, wheat and other cereals, which made cassava derivatives increasingly competitive.

Demand originates mainly in Belgium, the Federal Republic of Germany and the Netherlands, where cassava is consumed in the form of chips, pellets and meal, and is closely correlated with the prices of products that can be substituted for cassava such as maize and sorghum. These European countries usually import cassava products from Angola, Brazil, Indonesia, Madagascar, Malaysia, Thailand and the United Republic of Tanzania. The producers can sell on the European market at competitive prices for two main reasons: the large areas of cassava plantations permit them to have mechanized systems, with a consequent reduction in the cost of production of the raw material; the climate enables them to carry out much of the drying process in the sun, which also helps the production process enormously.

As was mentioned above, the feasibility study was based on the European market for cassava chips. Before the plant reached a normal level of production

[2] One quintal equals 45.45 kilograms.

however, transport costs rose to such an extent that the product could not be sold on the European market.

A market study was then made with the collaboration of the Ministry of Economy, Industry and Commerce, UNIDO and the National Institute for the Furtherance of Co-operatives that showed that from the nutritional point of view cassava meal could be substituted for maize or sorghum in animal feeds on the local market. Because of the low protein content of cassava (1.5-2 per cent, compared with 8.9 per cent for sorghum), a protein supplement would have to be added—cotton meal or meat meal, for example,

An analysis made in 1974 of the total consumption figures of concentrates showed that, out of a total of about 55,000 tons of maize and sorghum, about 21,800 tons could be replaced by a mixture of 17,440 tons of cassava meal and 4,360 tons of cotton meal.

For market penetration to be successful, the product must be sold at a price that is advantageously low in relation to the other products (about 80 per cent of the price of sorghum).

Accordingly, URCOZON set about making the necessary changes and adjustments in its end-product in the middle of 1976 and shortly afterwards was producing and selling the meal. At that stage, the following problems arose:

(a) The plant was designed, like its equipment, to obtain a solid finished product. Since a powdered product was being obtained, cassava meal was scattered all over the plant;

(b) During the process, problems were encountered with the drying of the product and with cooling, since it emerged very hot;

(c) The product was a new one on a market that showed a marked preference for maize and sorghum.

Socio-economic objectives of the programme

Annex I gives a detailed breakdown of the estimated income (sales) and manufacturing costs for a cassava chips plant with a capacity of 16,000 tons of end-product. The estimated income from the sale of 16,000 tons of cassava chips is ₡13,094,400, which is the output of the plant when operating at maximum capacity. Production costs for the volume of sales mentioned are estimated at ₡12,081,581. The corresponding net income is ₡1,012,819, which represents a return of 11 per cent on total investment and 16 per cent on fixed capital investment.

It should be noted that the cost of the fresh cassava root (₡8,800,000), the principal raw material used in the manufacture of the chips, is more than 74 per cent of the total manufacturing cost. Consequently, any variation in its price (₡10.00 per quintal) could affect the costs and profitability of the project considerably.

The economic effects for the cassava plantations, which, as has already been indicated, are privately owned, are shown in annex II. In the example given, a plantation of 20 blocks of cassava gives earnings of ₡10,104 in the first year on a sales income of ₡70,000. The activity is therefore profitable for the grower.

Form of organization

The organization of URCOZON is as follows:

(a) *Assembly of members (general assembly).* The assembly is the supreme authority of the Union and consists of delegates from the member co-operatives;

(b) *Administrative council.* The council, a deliberative body, is elected by the assembly. It is made up for the most part of persons who are not cassava producers, and this limits the direct participation of the growers in the important decisions of the industry on their product;

(c) *General manager.* The general manager represents the Union in a legal capacity and otherwise. He is also responsible for faithful compliance with the statues, the execution of agreements of the assembly and the administrative council, and the direct administration of the society. He is also depositary of the general and special powers of attorney on conditions granted to him in each case by the central administrative council or the general assembly;

(d) *Plant manager.* Since the plant is completely automated, the plant manager has only five persons under his direction. He trains staff in the use of the machines;

(e) *Agricultural extension and assistance manager.* The principal task of the agricultural extension manager is to prepare the programmes for sowing and harvesting the cassava and provide technical assistance with sowing and with using of herbicides and fertilizers. He keeps statistics on cassava production and the planning of cassava cultivation;

(f) *Marketing manager.* The marketing manager exercises all functions relating to the marketing of the product, particularly carrying out market studies and studies on other uses of cassava meal or derivatives;

(g) *Maintenance manager.* The maintenance manager carries out the preventive maintenance of the machinery and equipment and the maintenance of the installations.

Achievements of programme

The initial problem the Union faced was that the plant was designed to produce slices or chips of cassava, while domestic demand was only for meal. As a result, sales grew slowly at first. The problem was solved by leasing a mill to convert the chips into meal. In the middle of 1976, the Union was selling cassava meal for mixing with other products for concentrated animal feeds. Sales did not increase sufficiently, and the productive capacity of the plant has remained underutilized.

The initial aims could not be met because of a change in the costs of transport not envisaged in the original study. When the project was started, a market study should have been made on the use of cassava meal as an animal feed in Costa Rica, independent of exports or the world market, which is always subject to unexpected changes. The study was not made until May 1976, two years after the feasibility studies for the project.

URCOZON has had problems in reaching the break-even point (see annex III), which, according to the feasibility study, was 8,160 tons, or 51 per cent of maximum manufacturing capacity.

Minimum monthly sales were not made because of a clear lack of a market. The production cost of a quintal of cassava meal depends on the total volume of meal

produced: since fixed costs are divided among the units produced, the larger the output, the lower the fixed cost per unit.

According to the economic report submitted to the general assembly in February 1977, an average of 19,000 quintals of fresh cassava was received each month, and an average of 4,700 quintals a month was sold. Recently, monthly sales have reached 8,000 quintals. This level of production is below the break-even point, which has been estimated at 12,000 quintals a month at a price of ₡52.50 a quintal, 9,000 quintals a month at a price of ₡57.50 a quintal, and 11,350 quintals a month at the current price of ₡55.50.

At the level of production at the date of the report (February 1977), the total cost of a quintal of processed meal was ₡65.85, and the average selling price was ₡56.50, which gives a loss of ₡9.35 a quintal. The plant was working at 30 per cent of its installed capacity; to reach the break-even point it should work at 65 per cent capacity (although this percentage depends on the production costs). At the end of the period 1 October 1975-30 September 1976, sales had been ₡3 million, with a loss of ₡336,000.

In technical matters, the programme had from the outset the support of advisers from the Federal Republic of Germany. However, the advisers were unable to train personnel, and they assumed executive functions, there being no clear division between the functions of the technical advisers and the general manager. In mid-1977 the advisers withdrew. The project has not been subsidized, but the machinery, as already mentioned, was donated by the Federal Republic of Germany, and the loan from the Institute for the Furtherance of Co-operatives, granted on favourable terms, had a two-year period of grace.

Effect of the programme on the community

The programme was started in 1974. In view of the difficulties in the marketing of the product and the changes in the end-product, the general manager decided to reduce the purchase price of fresh cassava for 1977 to less than ₡10.00 a quintal at the farm, in accordance with the conclusions of the cost study, so as not to continue to show losses.

Nevertheless, the producers have continued to deliver cassava, but in considerably smaller volumes and protesting that at that price they would stop planting cassava. Thus, this rural industry has not been able to help to mobilize available resources in the area of San Carlos: raw material, because low prices are being paid for it; and human resources because the automatic machinery does not require much labour.

If the price of fresh cassava does not go up, the local entrepreneur who owns the small lots will not be able to develop, and will not be able to try new work possibilities that would help to prevent migration from the countryside to the towns.

To conclude: the extension course given by the Ministry of Agriculture on suitable methods and technology for the cultivation of cassava showed that the idea of growing cassava was accepted by the community, but that when the prospects of selling the product deteriorated, the growers stopped planting it.[3]

[3] Data from: Considerations of the use of cassava flour as an animal feed in Costa Rica, study made by the Ministry of Economy, Industry and Commerce, in collaboration with the National Institute for the Furtherance of Co-operatives, with the experts of UNIDO project CO5/72/007.

Annex I

ESTIMATE OF INCOME AND MANUFACTURING COSTS FOR THE INSTALLATION OF A DRY CASSAVA CHIPS PLANT WITH AN ANNUAL CAPACITY OF 16,000 TONS

(Colóns)

Item				
A.	*Estimated income*			
	352,000 quintals at ₡37.20/quintal Sale of 16,000 tons at ₡818.40/ton (equivalent to ₡37.20/quintal)			13 094 400
B.	*Estimated manufacturing costs*			12 081 581
	Raw materials		9 604 000	
	Fresh cassava root ₡10 x 880,000 quintals	8 800 000		
	Chemical products	4 000		
	Packing materials	800 000		
	Other costs		520 459	
	Building depreciation (2.5 per cent of ₡1.2 million)	30 000		
	Depreciation of machinery and accessories (₡4.5 million), depreciation of auxiliary plant, equipment and vehicles	225 000		
	Interest on debt	256 827		
	Vehicle insurance	2 632		
	Insurance of buildings, machinery and accessories, warehousing of product in store (rain, spillage and fire)	6 000		
	Cost of services		1 370 100	
	Water	60 000		
	Fuel	7 200		
	Heating oil for boiler	916 400		
	Electricity	256 000		
	Building maintenance	18 000		
	Maintenance of machinery and accessories (2.5 per cent of 4.5 million), maintenance of auxiliary plant and equipment	112 000		
	Payroll		576 222	
	Manager (1)	68 400		
	Technician (1)	48 000		
	Supervisor (1)	28 000		
	Accountant (1)	28 000		
	Workers	225 000		
	Secretary	10 800		
	Watchman	5 400		
	Porter-doorman	7 000		
	Social benefits including Christmas boxes (37 per cent of ₡420,600)	155 622		
	Extension work and miscellaneous costs		10 800	

Item			
C.	*Net income*[a]		1 012 819
D.	*Capital*		
			Percentage of total
			Without donation / *With donation*
	Working capital	2 782 424 (Costa Rica)	59 / 30
	Fixed capital	1 909 908 (Costa Rica)	41
	Subtotal	4 692 332 (Costa Rica)	100
	Donation in fixed capital	4 500 000 (Federal Republic of Germany	
	Total fixed capital	6 409 908	70
	Total capital	9 192 332	100
E.	*Return*		
	On total investment	11%	
	On fixed investment	16%	

[a] Before payment of debt amortization.

Annex II

CASH FLOW FOR A UNIT OF 20 BLOCKS OF CASSAVA[a]

(Colóns)

Item	*Period* 1	2	3	4	5
Sales of product[b]	70 000	70 000	70 000	70 000	70 000
Total costs	46 200	46 200	46 200	46 200	46 200
Investment	–	–	–	–	–
Operation	46 200	46 200	46 200	46 200	46 200
Inputs	46 200	46 200	46 200	46 200	46 200
Investment loans	–	–	–	–	–
Operation loan from national banking system	46 200	36 200	26 200	16 200	–
Input by borrower	–	10 000	20 000	30 000	46 200
Debt servicing	49 896	39 096	28 296	17 496	–
Amortization	46 200	36 200	26 200	16 200	–
Interest	3 696	2 896	2 096	1 296	–
Net income	20 104	30 904	41 704	52 504	70 000
Reserve for next period	10 000	20 000	30 000	46 200	46 200
Earnings for the period	10 104	10 904	11 704	6 304	23 800

[a] Daily wage of ₡20.00.
[b] 350 quintals at ₡10.00/quintal.

Annex III

THE ECONOMICS OF THE URCOZON PROJECT

Cost estimates

Item		*Amount (¢)*
	VARIABLE COSTS	
Local raw material (fresh cassava root)		8 800 000
Imported chemical products		4 000
Packaging materials		800 000
Interest on working capital investment		54 445
Vehicle insurance		395
Insurance on buildings, machinery, accessories and warehousing of product in store		900
Water		60 000
Fuel		7 200
Heating oil for boiler		916 400
Electricity		256 000
Building maintenance		18 000
Maintenance of machinery and accessories		112 040
Maintenance of auxiliary plant and equipment, workers		90 000
Extension work and miscellaneous costs		62 700
	Total	11 182 080
Variable costs per unit: ¢31.76/quintal, or ¢698.88/ton		
	FIXED COSTS	
Building depreciation		30 000
Depreciation of machinery and accessories, auxiliary plant, equipment and vehicles		225 000
Interest on fixed capital investment		217 782
Vehicle insurance		2 237
Insurance of buildings, machinery and accessories, warehousing of product in store		5 100
Manager (1)		68 400
Technician (1)		48 000
Supervisor (1)		28 000
Accountant (1)		28 000
Workers (10)		135 000
Secretary (1)		10 800
Watchman		5 400
Porter-doorman		7 000
Social benefits, including Christmas boxes		155 622
Extension work and miscellaneous costs		8 100
	Total	974 441
Fixed costs per unit: ¢2.77 quintal, or ¢60.90/ton		

Summary

Fixed costs	974 441	8%
Variable costs	11 182 080	92%
Total cost	12 156 521	100%

DETERMINATION OF BREAK-EVEN POINT

$$BEP = \frac{F}{SP \times VC} \times Q$$

BEP = break-even point
F = = fixed costs per quintal
VC = variable costs per quintal
SP = selling price per quintal
Q = quintals produced per year

For F = ₡2.77
VC = ₡31.76
SP = ₡37.20 (₡818.40/ton)
Q = 352,000

$$BEP = \frac{2.77}{37.20 \times 31.76} \times 352{,}000$$

= 179,520 quintals (8,160 tons), or 51 per cent of maximum manufacturing capacity

Books

RURAL DEVELOPMENT: LESSONS FROM CHINA

Rural Industrialization in China
by Jon Sigurdson
London, Harvard University Press, 1977

Rural Small-Scale Industry in the People's Republic of China
by the American Rural Small-Scale Industry Delegation
Berkeley, University of California Press, 1977

Rural Development—Learning from China
by Sartaj Aziz
London, The MacMillan Press Institute, 1978

China has provided an outstanding example of successful rural development undertaken over the last 25 years. It is unique among the centrally planned economies in giving primacy to the use of local natural and human resources for local economic, social and cultural development and for reinvesting within the local area the surpluses so generated, and at the same time, effectively integrating rural development with modernization in the urban sector. Thereby China has achieved substantial improvement in the standard of living of its people, accompanied by an extremely equitable distribution of income.

The three books under review are based on first-hand field studies in China. Sigurdson's study is confined to rural small-scale industries against a background of analyses of policies, planning systems and institutions. He also provides examples from the chemical fertilizer, cement, farm machinery and engineering, iron and steel and paper subsectors.

According to Sigurdson, the rural industrial sector in China consists of enterprises that vary greatly in size and in the degree of technological sophistication. The total number of such enterprises is estimated to be 500,000 or more. The largest category, at the brigade level, consists of several hundred thousand repair and manufacture shops. The second largest category is composed of small mines numbering about 100,000. There are also 50,000 small hydroelectric stations. Many of the 50,000 communes in China have their own workshops for grain milling, oil pressing and other food-processing plants, woodworking shops etc., usually organized in multi-purpose units. Rural heavy industries, consisting of small iron and steel plants, cement plants, chemical fertilizer plants and other chemical plants, are estimated to number between 5,000 and 10,000 units. There are also estimated to be about 3,000 country-run machinery plants. Consumer-industry enterprises number over 100,000. The total industrial employment generated in the rural areas is estimated to be about 10-17 million, or approximately 50 per cent of total employment in manufacturing and mining. However, employment in industry amounts to only 5 per cent of total employment in rural areas.

The success of rural industrialization efforts in China has been due to a number of factors. The establishment of rural industries has been closely integrated with agricultural improvement and other rural activities (including the development of

infrastructure, training, science and technology development etc.), within a sectoral strategy that entails conscious choices of technology (by scaling down large-scale technology) and of appropriate products, quality and design to suit local markets. At the same time, the technology of traditional village crafts has been scaled up. The sectoral strategy includes both the development of backward-linkage industries to meet the demand for consumer goods and agricultural inputs and forward-linkage industries based on local resources. The promotion of small-scale industries in rural areas has not been at the expense of or in competition with the development of medium- or large-scale enterprises at appropriate locations. The aim has been to facilitate the eventual development of a balanced industrial structure, with the scales of enterprises varying widely.

Sigurdson concludes with some comments on the relevance of the rationale of rural industrialization in China for other developing countries. He feels that there are both technical and political constraints on applying the Chinese model to other developing countries. It may not be possible in capitalist economies to distribute costs and allocate resources so as to plan for lower profit margins for enterprises located in rural areas. A strong political commitment is required for providing the technology and the technicians necessary for adapting it for use in rural areas. Sigurdson regards the dependency structure of most developing countries as the most serious political constraint militating against rural development programmes on the scale of that of China.

The second book under review, prepared by the American Rural Small-Scale Industry Delegation, is an empirical study based on fact finding by members of the delegation working closely with their Chinese counterparts. The delegation carefully avoids generalizations based on the limited studies undertaken. The logic of Chinese rural small-scale industry development, based schematically on raising the output of agriculture and linking industrialization with the complementary requirements of agricultural tools and machinery, cement and chemical fertilizer, is meaningfully analysed. The advantages of small-scale rural industry within the limitations of transport and marketing are stressed. One of the primary motivations has been to narrow the social gap between the countryside and the city through scaling up technology and capital intensiveness of rural enterprises. Self-reliance is the kingpin of the whole programme.

The study reviews socialist administrative systems relating to small-scale industry, worker incentives and economies of rural small-scale industry. It contains chapters on agricultural mechanization and machinery production, small-scale chemical fertilizer technology and cement industry technology. The concluding chapters analyse the contribution of small-scale industry to agriculture, its impact on Chinese society and its effects in expanding knowledge and transforming attitudes.

In the summer of 1975 the American delegation was particularly impressed by the progress being made towards modernization and capital intensiveness. The team felt that these enterprises would one day no longer be considered small-scale.

The study does not attach significance to the measure of efficiency in the sense applied in capitalist or market economies; it points to the concept of dynamic efficiency that applies in China. The role of rural small-scale industry is supplementary in raising farm yields, but important in the broader effort at social transformation. Finally, the role of rural small-scale industries is regarded by the team as an interim one—one of helping to bridge the economic and social gap between the present rural-oriented China and a future industrialized and urban

China. The book provides a wealth of economic and technological data on farm equipment, fertilizers and cement.

The third book, by Sartaj Aziz, assesses the Chinese approach to rural development, in the context of the model and process of development followed by China during the last 25 years. The book is not on rural industrialization *per se*. As Barbara Ward points out in the foreword,

> ". . . the Chinese have found solutions to virtually all the major problems posed by the first stages of modernization . . . This Chinese achievement was contrived by ignoring the accepted beliefs of Western development experts and the most sober tenets of orthodox Marxism."

The theme of Mr. Aziz's analysis is the relevance of Chinese experience and what other developing countries can learn from it. The first part of the book, containing five chapters, analyses and evaluates the Chinese experience in rural development. In the second part, consisting of four chapters, a theoretical framework for rural development is formulated, the relevance of China's experience for other developing countries is examined in the light of this framework, and intermediate or partial solutions are proposed. The author states that any rural development strategy must take into account five key elements: *(a)* an equitable distribution of land and other rural resources; *(b)* organization of the rural population for collective or co-operative activities; *(c)* diversified rural activities to ensure increasing social productivity, more employment opportunities and rising incomes; *(d)* gradual but active promotion of a policy of social development; and *(e)* political and administrative capacity to link rural communities with the rest of the economy and to resolve conflicts. Basic to these elements should be the realization that the surplus manpower in the rural areas is the most important potential source of capital and of increased productivity.

The author concludes that the main lesson of the Chinese experience is that:

> "to achieve the objective of equality of opportunity and equal distribution of incomes, appropriate social reforms and changes must be introduced *before* the policies, programmes and institutions for economic and technological progress are initiated or set up".

Similar conclusions have been derived from development experience in several countries.[1] After elaborating the applicability of the five key elements to other developing countries, the author concludes that the political prerequisites for rural development exist in 12-15 countries; these prerequisites are only partially met in another 15-20 countries. The author proposes intermediate solutions for the latter group of countries. Examples of successful intermediate approaches followed in Bulgaria, India (Punjab State), Israel, Japan and the United Republic of Tanzania are analysed.

In conclusion, the author gives primacy to evolving an organic concept of development employing harmonious political, social and economic change, rather than merely paying attention to resource allocation, fiscal policy or distribution of foreign assistance. While China faces many difficult problems and choices in the future, it is in a sound economic, social and political position to succeed, since it has already built up a minimum of economic well-being for the entire population and created a sense of security and a sense of identity.

S. NANJUNDAN

[1] See Frances Stewart and Paul Streeten, "New strategies for development: poverty, income distribution and growth", *Oxford Economic Papers*, No. 3, 1976.

RECENT UNITED NATIONS PUBLICATIONS PREPARED BY THE INTERNATIONAL CENTRE FOR INDUSTRIAL STUDIES, UNIDO

The Effectiveness of Industrial Estates in Developing Countries

Sales No. 78.II.B.11. Price: $US 6.00

Developing countries have long employed industrial estates as an instrument for furthering the growth of small-scale industries. UNIDO, in co-operation with the Swedish International Development Authority (SIDA), conducted an evaluation of the effectiveness of industrial estates in 13 developing countries during 1976 and held an expert group meeting to consider the results of the evaluation. This publication includes the report of the expert group meeting and a summary of the evaluation studies. The conclusions the expert group reached on the factors contributing to the success of an industrial estate programme should be useful to economists, administrators and experts involved in programmes of small industry development.

Guidelines for the Establishment of Industrial Estates in Developing Countries

Sales No. 78.II.B.13. Price: $US 5.00

The guidelines provided in this publication are based on the evaluation of industrial estate development in 13 countries described in the publication reviewed above. These guidelines analyse the concept and types of industrial estate, incentives provided, policies and programmes, considerations in project formulation, design considerations, methods of financing and use of funds, organization and administration, supporting institutions and services required, and criteria for a successful programme. The publication should be of interest to experts, economists and administrators in developing countries.

Industrialization and Rural Development

Sales No. 78.II.B.10. Price: $US 5.00

Towards the end of 1977, UNIDO organized an expert group meeting on industrialization in relation to integrated rural development. The meeting considered case studies reviewing experience on the subject. It formulated guidelines for strategies and programmes of industrialization in relation to integrated rural development. The publication includes the report of the expert group meeting. It also includes the paper on basic issues presented to the meeting and three case studies relating to Mexico, Papua New Guinea and the United Republic of Tanzania. Experts, economists and administrators engaged in formulating strategies and policies or in implementing rural industrialization programmes should find the publication useful.

INFORMATION TO CONTRIBUTORS

The Supervisory Panel of *Industry and Development* welcomes contributions relevant to the stated aims and scope of the journal. Authors should contact the Supervisory Panel at the address given below.

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